THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XXIV. OF VOL. II., 1916.
No. 4867. Vol. CXCI. LONDON, SATURDAY, DECEMBER 9, 1916. Price 6d.

NOW READY. 73rd Annual Issue. 2119 Pages.
16s. net (postage 8d.).

THE MEDICAL DIRECTORY, 1917.
LONDON, PROVINCES, WALES, SCOTLAND, IRELAND, ABROAD, ARMY AND NAVY, DENTAL SURGEONS.
London: J. & A. Churchill, 7, Gt. Marlborough-street, W.

NOW READY. Demy 8vo. 5s. net (postage 4d.).

POVERTY AND ITS VICIOUS CIRCLES.
By JAMIESON B. HURRY, M.A., M.D.,
Author of Vicious Circles in Diseases.
This illustrated monograph discusses Poverty from a fresh aspect, and shows how greatly the study of Vicious Circles assists both in the prevention and cure of this social disorder.
London: J. & A. Churchill, 7, Great Marlborough-street.

Price 15s. net. Post free 15s. 7d.

SQUIRE'S COMPANION to the BRITISH PHARMACOPŒIA.
An Epitome of over Half a Century's progress in
THERAPEUTICS, CHEMISTRY, and PHARMACEUTICS.
Published by J. & A. Churchill, 7, Great Marlborough-street, W

8vo, 12s. 6d. net. Stereoscope, 2s. 6d. net.

RHINOLOGY: A TEXT-BOOK OF THE DISEASES OF THE NOSE AND ACCESSORY SINUSES.
47 Plates and 146 Illustrations.
By P. WATSON-WILLIAMS, M.D. Lond.,
Lecturer on Diseases of Ear, Nose, and Throat, University of Bristol, and in Charge of Ear, Nose, and Throat Department, Bristol Royal Infirmary.
Longmans, Green & Co., 39, Paternoster-row, London, E.C.

By H. BELLAMY GARDNER, M.R.C.S., L.R.C.P. Lond.

A MANUAL OF SURGICAL ANÆSTHESIA.
Second Edition. Price 7s. 6d. 215 pages, 46 Illus., 8 Plates.
"A concise and well-written handbook."—EDIN. MED. JOURN.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

Now Ready. Crown octavo. 56 pp. Illus. Price 1s. net; by post 1s. 2d.

NOTES ON MILITARY ORTHOPÆDICS.
By PAUL BERNARD ROTH, F.R.C.S. "Should be in the hands of every surgeon on active service."—MEDICAL WORLD.
Henry Kimpton, 263, High Holborn, London, W.C.

Now Ready. Pp. xi. + 289. With 3 Charts. 5s. net.

ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation .. ... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

BONESETTING and the TREATMENT of PAINFUL JOINTS.
By FRANK ROMER, M.R.C.S., L.R.C.P., and
L. ELIOT CREASY, M.R.C.S., L.R.C.P.
Crown 8vo, 1s. net.
"Messrs. Romer & Creasy strip this branch of practice of the cloud of mystery and miracle which has been thrown around it by interested people and well-meaning, but ignorant supporters. They effectually disprove the foolish charge that the medical profession has wilfully ignored the subject, and they have dealt with it in an unprejudiced spirit. Moreover, they bear witness to the fact that the profession keeps an open mind as to everything connected with the treatment of disease and the relief of pain and physical disability, and is willing to learn from any source anything that may seem likely to be useful for these purposes."—BRITISH MEDICAL JOURNAL.
James Nisbet & Co., Limited, 22, Berners-street, W.

Demy 8vo. 3s. net; post free, 3s. 4d.

A NEW TREATMENT FOR GONORRHŒA.
By CHARLES RUSS, M.B., M.R.C.S., L.R.C.P., Physician-in-Charge, Electro-Therapeutic Department, Male Lock Hospital, London.
[*Now Ready.*
"This form of treatment merits further attention, as it is both scientific and ingenious. Instead of attacking the gonococci in their strongholds by means of bactericidal agents, which too often do not reach them, they are lured, so to speak, from their entrenchments by electrolytic action."—BRITISH MEDICAL JOURNAL.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.

ON DISEASES of the LUNGS and PLEURÆ, including TUBERCULOSIS and MEDIASTINAL GROWTHS.
By Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., M.D. Lond., F.R.C.P., and P. HORTON-SMITH HARTLEY, C.V.O., M.D. Camb., F.R.C.P. Fifth Edition.
With 29 Plates (six coloured) from Original Drawings, and 53 Illustrations in the text. Demy 8vo. 21s. net; inland postage 7d., abroad, 1s. 4d.
"We can safely say that no affection of the lungs has escaped the notice of the writers."—THE LANCET.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.

By H. J. WARING, M.S., M.B., B.Sc. Lond., F.R.C.S., Surgeon to, and Joint Lecturer in Surgery at, St. Bartholomew's Hospital; Consulting Surgeon to the Metropolitan Hospital; Member of Court of Examiners, Royal College of Surgeons; late Examiner in Surgery, University of London.
New Edition Shortly. 8vo, extra cloth. Pp. xvi.-385, with 58 Engravings Price 12s. 6d. net.

SURGICAL DISEASES OF THE GALL-BLADDER, BILE DUCTS, AND LIVER.
THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT.
(*Including Jacksonian Prize Essay.*)
Henry Frowde & Hodder & Stoughton, 20, Warwick-square, E.C.

"*The best text-book of surgery in English.*"—THE LANCET.

NINTH EDITION.

ROSE AND CARLESS' SURGERY.
"*There is no text-book of surgery in this or any other country so adequate and yet so convenient.*"—PRACTITIONER.
"*It contains all in surgery that a practitioner may desire to have.*"—BRITISH MEDICAL JOURNAL.
Pp. xii. + 1408, with 16 Coloured Plates and 609 Figs. Price 21s. net.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

FREYER'S ENLARGEMENT of the PROSTATE. With a Description of the Author's Operation of Total Enucleation of the Organ. A Work based on 800 Cases of the Operation. THIRD EDITION. With 54 Illustrations. Price 6s. net.
SURGICAL DISEASES OF THE URINARY ORGANS. With 141 Illustrations. Price 12s. 6d. net.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, London.

Pp. iv. + 64. Price 3s. 6d. net.

INTENSIVE TREATMENT OF SYPHILIS AND LOCOMOTOR ATAXIA BY AACHEN METHODS.
By REGINALD HAYES, M.R.C.S.
THE LANCET says:—"No better exposition of the method as practised at Aachen can be found than that contained in this little work."
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

BY FRANK KIDD, F.R.C.S.,
Assistant Surgeon at the London Hospital, and Surgeon-in-Charge of Genito-Urinary Department, London Hospital.
In the Press, to be published shortly.
COMMON DISEASES OF THE MALE URETHRA.
Being a Course of Lectures delivered at the London Hospital, designed to assist those who may be starting Genito-Urinary Clinics.

BY THE SAME AUTHOR. Price 7s. 6d. net.
URINARY SURGERY. A REVIEW.
"This book can be thoroughly recommended to those who are desirous of being acquainted with the modern position of Urinary Surgery."—GLASGOW MEDICAL JOURNAL.
London: Longmans, Green & Co., 39, Paternoster-row, E.C.

WANTED, "BRAIN."
ANY VOLUMES OR NUMBERS.
Henry Kimpton, 263, High Holborn, London, W.C.

THE LANCET is registered as a Newspaper. All rights reserved.

"LESLIES' ZINCOPLAST"

A MUCH IMPROVED MAKE OF ZINC OXIDE PLASTER; STRONGLY SELF-ADHESIVE; NON-IRRITATING; DOES NOT DRY UP.

May be obtained on White or Pink Tinted Cloth, 5 yd. or 10 yd. spools, in all the usual widths.

Medical Officers and Pharmacists are invited to write for Trial Sample.

LESLIES' Original Brown Holland Surgical Strapping (DOES NOT SLIP)

In General Hospital Use since 1875. Has a World-wide Reputation.

LESLIES, Ltd., 18, Eldon Street, London, E.C.

SUPPORT BRITISH INDUSTRY AND CAPITAL BY USING

CARBURINE MOTOR SPIRIT

OBTAINABLE EVERYWHERE IN SEALED 2 GLN. CANS.

By Appointment to H.M. THE KING.

IF YOU CANNOT GET SAME FROM YOUR LOCAL GARAGE PLEASE WRITE TO—

G. L. I. CO., LTD., SALISBURY HOUSE, LONDON WALL, LONDON, E.C.

By Special Appointment to H.M. THE KING.

CARTERS'

Established over 60 — years —

FURNITURE FOR INVALIDS & HOSPITAL SUPPLIES OF EVERY DESCRIPTION.

Telegrams: "BATHCHAIR, WESDO, LONDON." Telephone: 1040 MAYFAIR.

The "Surrey" Bath Chair. From 50/-

Reading Stands, Bed Tables, Adjustable Reclining Chairs and Couches, Spinal Carriages, Hand Tricycles, Self-propelling Chairs, Hospital Beds, Commodes, Ambulances, Aseptic Theatre Equipment.

Purchase direct from the Manufacturers:

J. & A. CARTER

2, 4 & 6, NEW CAVENDISH ST., LONDON, W.

The "Iverna" Wheel-Carrying Chair.

THE LANCET.

No. 4867. LONDON, SATURDAY, DECEMBER 9, 1916. Vol. CXCI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

SOME PRACTICAL OBSERVATIONS on the Injuries of War. By A. MARMADUKE SHEILD, M.B. Cantab., F.R.C.S.E., Consulting Surgeon to St. George's Hospital and to the Royal Waterloo Hospital for Children and Women; Temporary Surgeon to No. 5 V.A.D. Hospital, Exeter.—(*To be concluded*) 967

ORIGINAL ARTICLES.

An Investigation into the Agglutinating Properties of Certain Sera against *B. Typhosus* and *B. Enteritidis* Gaertner (Delépine, 7160). By THOMAS T. O'FARRELL, F.R.C.S.Irel., D.P.H., First Assistant in Pathology, University College, Dublin (N.U.I.); Pathologist, St. Vincent's Hospital, Dublin. (From the Pathological Laboratories, University College, Dublin.)—(*Illustrated*) 970

Chronic Gonorrhœa Cured by Electrolysis. By CHARLES RUSS, M.B.Lond., M.R.C.S. (From the Electrical Department of the Lock Hospital, Dean-street, London, W.).... 977

A Case of a Bullet in the Sphenoidal Sinuses; Removal through the Left Nostril. By H. ELWIN HARRIS, F.R.C.S. Eng., Captain, R.A.M.C. (T.); Surgeon, Beaufort War Hospital, Bristol.—(*Illustrated*) 978

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Retained Placenta in a Rudimentary Horn of the Uterus. By M. C. S. LAWRANCE, M.B., Ch.B.Vict., &c..... 979

A Case of Congenital Absence of Nails. By BERNARD O'NEILL, B.A. Cantab., M.R.C.S., L.R.C.P. Lond.—(*Illustrated*) 979

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE:

SECTION OF MEDICINE:—Œsophagectasia.—Acquired Syphilis of the Lungs..... 980

REVIEWS AND NOTICES OF BOOKS.

The Statutes, Regulations, and Orders relating to National Health Insurance..... 981

The Panel Doctor: His Duties and Perplexities. By T. M. Tibbetts, M.D. Lond., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. 981

The Art of Anæsthesia. By P. J. Flagg, M.D..... 982

A Handbook of Colloid-Chemistry. By Dr. Wolfgang Ostwald. First English edition. Translated from the third German edition by Dr. Martin H. Fischer, with the assistance of Ralph E. Oesper, Ph.D., and Louis Berman, M.D..... 982

NEW INVENTIONS.

An Improved Type of Needle for Lumbar Puncture (Dr. R. Donaldson).—(*Illustrated*) ... 982

LEADING ARTICLES.

THE COMMITTEE OF REFERENCE OF THE ENGLISH ROYAL COLLEGES AND THE PROBLEM OF THE DISABLED SOLDIER.. 983

THE METROPOLITAN WATER-SUPPLY AND THE WAR: CHLORINATION ADOPTED..... 984

ANNOTATIONS.

The Department of Scientific and Industrial Research 985

The Mental Strain of Internment 985

The Whipping Craze..... 985

Infantile Mortality in British Columbia 986

The Medical Directory..... 988

THE GENERAL MEDICAL COUNCIL.

Penal Cases 987

Straits Settlements Medical Qualification 987

Japanese Qualifications 987

Pharmacopœia Committee..... 988

Anatomy Acts Committee 988

Preliminary Examination in General Knowledge..... 988

Recommendations 988

Dental Education and Examination Committee 988

Public Health Committee 988

Apothecaries' Hall of Ireland.. 988

SPECIAL ARTICLES.

Paris 988

The Control of Venereal Diseases: Some Practical Points in the Examination of Specimens for Diagnosis in Venereal Diseases.—(*Concluded*) 989

The Services 991

VITAL STATISTICS:

Health of English Towns..... 991

Health of Scotch Towns 992

Health of Irish Towns 992

CORRESPONDENCE.

"Spontaneous Burns" (Capt. Martin M. Cruickshank, R.A.M.C.)..... 992

Rheumatoid Arthritis Apparently Cured by "Auto"-Counter Irritation (Mr. C. T. Griffiths) 993

The Library of the Royal College of Surgeons of England (Mr. Percy Dunn).. 993

Scopolamine-Morphine in Labour (Mr. Ian Jefferiss)... 993

The Angle of the Dropping Pipette and a Method of Drop Measuring Liquids (Mr. R. Donald)..... 994

Resident Medical Officers at Children's Hospitals (Mr. K. S. Bhat) 1000

OBITUARY.

William Paul Swain, F.R.C.S. Eng., Consulting Surgeon to the South Devon and East Cornwall Hospital 996

THE WAR.

The Casualty List 994

Deaths among the Sons of Medical Men 994

Mentioned in Despatches 994

The Eye Risks of Munition Work 994

The Mobilisation of the Medical Profession..... 995

Accumulated Fatigue in Warfare 995

American Medical Experiences at the War 996

Recent Red Cross Work in Devonshire 996

"The Crimes of Germany" 996

OBITUARY OF THE WAR:

Ian Macdonald Brown, M.A. Camb., M.R.C.S.E., Capt., R.A.M.C.—(*With Portrait*) 995

James David Forrester, M.D., Ch.B. Edin., Capt., R.A.M.C.—(*With Portrait*) 995

MEDICAL NEWS.

The late Mr. C. D. Rudd's Benefaction..... 969

Centenarians 984

Child-Welfare Work in Ireland 986

Literary Intelligence..... 990

Royal Medical Benevolent Fund 997

Royal Surgical Aid Society.... 997

Irish Nurses and the College of Nursing, Limited..... 997

The Mental After-Care Association 997

The L.M.S.S.A. Examination . 997

Tuberculosis After-Care: Cambridgeshire Association..... 997

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 998

House of Commons 998

Vacancies..... 998

Births, Marriages, and Deaths 999

Notes, Short Comments, and Answers to Correspondents.. 999

Medical Diary..... 1001

Meteorological Readings..... 1001

Editorial Notices..... 1001

Manager's Notices..... 1002

Books, &c., received..... 1002

Acknowledgment of Communications received 1002

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

JOHN BALE, SONS & DANIELSSON, LTD.,

PRINTERS, PUBLISHERS, & PROCESS BLOCK MAKERS.

AMŒBIC OR TROPICAL DYSENTERY: Its Complications & Treatment.

By W. CARNEGIE BROWN, M.D. Fcap 4to. 271 + viii. pp. Cloth. 7s. 6d. net; postage 4d.

"For the practising physician ..... the work cannot fail to prove of great service. ..... We confidently recommend the volume to those who may be called upon to treat or prevent Amœbic Dysentery."—*The Lancet.*

"The book is well and clearly written and should prove a useful addition to the literature of this interesting and important subject."—*British Medical Journal.*

"Dr. Brown's book should be read by all who have a special interest in this very important disease."—*Medical Press and Circular.*

"All interested will find it a most valuable work, and since dysentery is so frequent in India we specially commend its pages to our practitioners."—*Indian Public Health and Medical Journal.*

"..... The book in its completeness and care of compilation reflects considerable credit on the writer."—*Midland Medical Journal.*

83, 85, 87, 89 & 91, GREAT TITCHFIELD ST., OXFORD ST., LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion ... 4
Blair Bell's The Sex Complex ... 3
Chapin & Pisek's Diseases of Children ... 3
Freyer—Enlargement of the Prostate ... Cover i
Freyer—Surgical Diseases of the Urinary Organs ... Cover i
Gardner—Manual of Surgical Anæsthesia ... Cover i
Hayes—Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods ... Cover i
Jung—Analytical Physiology ... 3
Luys'—Gonorrhœa and its Complications ... 3
Macewen's Surgical Anatomy ... 3
Marshall—Syphilology and Venereal Disease ... 3
May & Worth's Eye ... 3
Rose & Carless' Surgery ... Cover i
Rose & Carless' Surgery .. Cover i
Simon—Infection and Immunity .. 3

PAGE

SALE, SONS & DANIELSSON:—
Brown—Amœbic or Tropical Dysentery ... 1

CHURCHILL, J. & A.:—
Hare—Alcoholism: Its Clinical Aspects and Treatment.. Cover i
Hurry—Poverty and its Vicious Circles ... Cover i
Medical Directory, 1917 ... Cover i
Squire's Companion to the British Pharmacopœia ... Cover i
Thorne, Bezly—Schott Methods of Treatment of Chronic Diseases of the Heart ... 4

FROWDE AND HODDER & STOUGHTON:—
Waring—Surgical Diseases of the Gall Bladder, Bile Ducts, and Liver ... Cover i

KIMPTON:—
Roth—Notes on Military Orthopædics ... Cover i

PAGE

LEWIS & CO:—
Medical Books ... 5
Powell, Sir R. D., & Hartley—On Diseases of Lungs and Pleuræ, including Tuberculosis and Mediastinal Growths ... Cover i
Russ—A New Treatment for Gonorrhœa ... Cover i
Scientific Books ... 5

LONGMANS, GREEN & CO.:—
Kidd—Common Diseases of the Male Urethra. A Course of Lectures delivered at the London Hospital ... Cover i
Kidd—Urinary Surgery ... „ i
Watson-Williams—Rhinology: a Text Book of the Diseases of the Nose and Accessory Sinuses ... Cover i

MEDICAL PUBLISHING CO.:—
Lane, Sir A.—Operative Treatment of Fractures ... 5

PAGE

NISBET & CO.:—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints ... Cover i

WRIGHT & SONS (BRISTOL):—
Porter—Diseases of the Throat, Nose, & Ear ... 5

MEDICAL LIBRARIES, &c.:—
Baker—Books ... 4
Behnke—Stammering, Lisping, & Cleft Palate Speech ... 4
Ketley—Stammering ... 4
Kimpton—"Brain" wanted, any volumes or numbers ... Cover i
Lewis & Co.'s Medical and Scientific Circulating Library ... 5
Matthews—Wood: Application of Trusses to Hernia ... 4
Scholl Mfg. Co.—Scientific Correction for Ailments of the Feet .. 34

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES, MEDICAL .. 53, 54

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford .. 49
Ashwood House, Kingswinford .. 48
Barnwood House Hospital ... 47
Bishopstone House, Bedford ... 51
Brunton House, Lancaster ... 51
Camberwell House, Peckham-road ... 49
Cheadle Royal ... 47
12, Cherington road, Hanwell ... 51
Clarence Lodge, Clapham Park .. 51
Colthurst House School, Alderley Edge ... 51
Coppice, The, Nottingham ... 47
Fairmyple House, Rickmansworth ... 49
David Lewis Colony, Alderley Edge ... 51
Duff House, Banff ... 50
General Manager, Craven-street.. 51
Ghyllwoods Sanatorium ... 49
Grove House, Church Stretton .. 47
Grove, The, Catton, Norwich ... 47
Haslemere Nursing Home ... 51
Haydock Lodge, Newton-le-Willows ... 48
Heigham Hall, Norwich ... 47
Homes for Inebriate Women ... 49
Littleton Hall, Brentwood ... 51
London Fever Hospital ... 47
Malling Place, Kent ... 47
Melbourne House, Leicester ... 49
Mendip Hills Sanatorium ... 49
Moat House, Tamworth ... 47
Newmains Retreat, Lanarkshire.. 49
New Saughton Hall, Polton, Midlothian ... 48
Nordrach-on-Dee, Banchory ... 50
Northumberland House, Finsbury Park ... 48
Northwoods House, Winterbourne 48

ASYLUMS—(Continued).
Otto House, West Kensington ... 48
Peckham House ... 48
Pendyffryn Hall Sanatorium, Nordrach in Wales ... 49
Plympton House, Plympton ... 47
Portsmouth Corporation Mental Hospital ... 51
Royal Earlswood Institution for Mental Defectives ... 48
St. Andrew's Hospital, Dollis Hill 51
St. Andrew's Hospital, Northampton ... 47
St. George's Retreat, Burgess Hill 51
St. Luke's Hospital for Mental Diseases ... 51
Springfield House Private Asylum, Bedford ... 46
Stretton House, Church Stretton 47
The Grange, near Rotherham ... 47
Vale of Clwyd Sanatorium ... 49
Warneford Asylum, Oxford ... 51
Wye House, Buxton ... 47

FINANCIAL, &c.:—
Equitable Reversionary Interest Society ... 51

HEALTH RESORTS, BATHS, &c.:—
Alexandra Therapeutic Institute. 50
Caterham Sanitarium ... 50
Davos ... 50
Droitwich Brine Baths ... 51
Smedley's, Matlock ... 50

HOSPITAL, INFIRMARY, SANATORIUM, &c., VACANCIES.. 52 53

HOUSE & ESTATE AGENTS:—
Redford & Co., Wigmore-street .. 54
Elliott, Son & Boyton, Vere-street ... 54
Ley Clark, Wimpole-street ... 54

LIFE & FIRE ASSURANCES, &c.:—
General Life Assurance Co. ... 51
Medical Sickness and Accident Society ... 8
National Provident Institution .. 51
Prudential ... 51

MASSAGE:—
Sharman ... 48

MEDICAL ACCOUNTANTS, &c.:—
Turner ... 54

MEDICAL AGENTS:—
Fieldhall, Limited ... 55
Manchester Clerical, &c., Association ... 55
Medical Agency ... 55
Needes, Herbert ... 55
Needes, J. C. ... 55
Peacock & Hadley ... 55
Turner ... 55

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine ... 44
St. Mary's Hospital Medical School ... 44
West London Post-Graduate College ... 44

NURSES' ASSOCIATIONS:—
Co-operation of Temperance Male and Female Nurses ... 45
Female Nurses Association ... 45
General Nursing Association ... 46
Hospital for Sick Children ... 46
London Nurses' Association ... 46
London Temperance Nurses Co-operation ... 48

NURSES' ASSOC. (Continued).
Male Nurses Temperance Co-operation ... 45
Mental Nurses Association ... 46
Mental Nurses' Co-operation ... 46
Nurses' Association ... 46
Nurses' Co-operation ... 45
St. John's House ... 46
St. Luke's Hospital ... 45
Temperance Association of Male Nurses, Ltd. ... 45
The Retreat, York ... 45

OFFICIAL NOTICES:—
Auxiliary R.A.M.C. Funds ... 44
City of London Lying-in Hospital ... 44
Dorset Field Club Essay ... 55
Epsom College ... 7
Guy's Hospital ... 44
London School of Tropical Medicine ... 44
Queen Charlotte's Lying-in Hospital ... 44
Royal College of Surgeons of England ... 44
Royal (Dick) Veterinary College, Edinburgh ... 44
Royal Society—Government Grant for Scientific Investigations ... 44
University of Cambridge ... 44
University of London ... 44

PARTNERSHIPS & PRACTICES. 54

RAILWAY & STEAMSHIP CO.'S.:—
New Zealand Shipping Co. ... 51

TUTORS & LECTURERS:—
Behnke ... 45
Medical Correspondence College. 44
Weymouth 44

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—Invalid Carriages ... 55

BOTTLE MERCHANTS:—
Isaacs ... 42

CARRIAGES, MOTORS, &c.:—
Armstrong—Chauffeurs', Coachmen's, Footmen's Liveries ... 54

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Allenburys Throat Pastilles ... 21
Azoule Pituitarin ... 28
„ Alopen ... 28
„ Emetine ... 28
„ Quinine Bihydrochloride 28
„ Camphor ... 28
Eynde Amara ... 22
Byno Chrismol ... 21
Chrismol ... 21
„ Capsules ... 21
„ Confection ... 21
„ Emulsion ... 21
Vapo-Cresolene ... 40
Anglo-French Drug Co.—
Inalter Vial ... 29
Antistreptococcus Serum ... 29
Antitetanic Serum ... 29
Antidiphtheritic Serum ... 29, 30
Anti-Diphtheritic Tablets ... 30
Para-Tetanine ... 30
Antikamnia Chemical Co.—
Antikamnia Tablets ... 56
„ & Codeine Tablets. 56

CHEMISTS—(Continued).
Battley & Watts—
Liquor Opii Sedativus ... 32
Boots Pure Drug Co.—
Aspirin ... 13
Sodium Salicylate ... 13
Chloralamide ... 13
Butyl-Chloral Hydrate ... 13
Salicylic Acid, &c. ... 13
British Drug Houses Ltd.—
Intramine ... 14
British Organotherapy Co.—
Reliable Organotherapeutic Preparations ... 11
British Oxygen Co.—
Oxygen ... 36
British Purchasers of Sanatogen—
Sanatogen ... 15
Formamint ... 15
Alburactin ... 15
Cystopurin ... 15
Bullock & Co.—
Pepsina Porci ... 36
Acid Glycerine of Pepsine ... 36
Burroughs Wellcome & Co.—
Practical Gifts for Christmas and New Year ... 27
Tabloid Brand Capsule Calcium Iodo-ricinoleate ... 24
Tabloid Brand Medical Outfits . 26
Christy & Co.—
Glyco-Thymoline ... 33
Glyco-Heroin ... 40
Crookes' Laboratories—
Collosol Sulphur ... 56
Erasmic Co.—Kinsol Medicated Toilet Soap ... 36

CHEMISTS—(Continued).
Etablissements Poulenc Freres—
Stovaine ... 11
Fletcher, Fletcher & Co.—
Vibrona ... 20
Gale & Co.—Compound Syrup of the Glycerophosphates, &c. ... 38
Heppells—
Urodonal ... 17
Howards' Sodii Bicarb. ... 34
Lambert Pharmacal Co.—
Listerine ... 34
Maltine Manufacturing Co.—
Malto-Yerbine ... 25
Martindale—
Emetine-Bismuth-Iodide ... 19
Stearettes of Emetine-Bismuth-Iodide ... 19
Newbery & Sons—
Pulvis Jacobi Ver. ... 40
New York Pharmaceutical Co.—
Haycen a Viburnum Compound 32
Parke, Davis & Co.—
Protosil ... 18
Price's Patent Candle Co., Ltd.—
Price's Night Lights ... 39
Price's Glycerin ... 39
Raimes & Co.—Slinger's Nutrient Suppositories ... 40
Saccharin Corporation, Ltd.—
Phytin ... 31
Ferreph-Tin ... 31
Quinine-Phytin ... 31
Fortossan ... 31
Smith & Co.—
Hall's Wine ... 39
S. P. Charges Co.—
Sulphaqua ... 38
„ Soap ... 38

CHEMISTS—(Continued).
Squire & Sons—
Elixir Calloid ... 16
Elixir Hypophysis Cereb. ... 16
Liquor Nucleinicus ... 16
Corisol ... 16
Wander, Ltd.—
"Wander" Malt Extract with Paramin ... 12
Wilcox, Jozeau & Co.—
Kola Astier ... 38

DISINFECTANTS:—
Boots Pure Drug Co.—
Chloramine-T ... 13
Condy's Fluid ... 6

FOODS—
Benger's Food ... 10
Blatchley's Diabetic Preparations Cover iii
Brand & Co.—
Essence of Beef 40
Cafolin Co.—Cafolin ... 41
Callard & Co.—
Diabetic Foods ... 41
Carnrick & Co—
Liquid Peptonoids ... 25
Fry's Malted Cocoa ... Cover iii
Hewlett & Son—
Virophos ... 38
Horlick's Malted Milk Co.—
Malted Milk Tablets .... Cover iii
Manhu Food Co.—
Manhu Diabetic Foods ... 41
Pan Yan Pickle ... 41
Valentine's Meat-Juice .... Cover iv

Continued on page 4.

Some Practical Observations ON THE INJURIES OF WAR.

By A. MARMADUKE SHEILD, M.B. CANTAB., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. GEORGE'S HOSPITAL AND TO THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN; TEMPORARY SURGEON TO NO. 5 V.A.D. HOSPITAL, EXETER.

(*Continued from p. 934.*)

LODGMENT OF MISSILES.

WHEN the missile has lodged it must be located by the X rays. And this should be done in all cases where there is no wound of exit, unless the evidence of removal by operation is clear. A small superficial wound may really be a penetrating one, and a foreign body easily overlooked. Much has been written on the question of operating on these cases, and as they widely differ only general principles can be mentioned.

As a rule, when the bullet or piece of metal is causing no inconvenience and deeply seated, as in the buttock, or near the neck of the femur, it had best be left alone. The same rule is wise when the missile is in the retroperitoneal tissue or mediastinum. This practice is very unpopular with the patients, who have vague ideas they are being "poisoned" by the bullet, and are deprived of the legitimate pride of showing it to visitors or relatives. Deeply seated bullets are easily missed by the operator. I have been generally successful in these cases, but must confess to some most annoying failures, where, though I was certain I was close to the piece of metal, I could not find it, even after a prolonged and extensive search. Where the operator is uncertain whether he is touching bone or bullet, the telephone probe is very useful. If the missile be associated with compound fracture, it should always be removed if possible, but this is not easy, and I have been defeated in several such cases, in completing my purpose.

The size of the missile has always to be considered. Where one would remove a large jagged piece of shell, a small scale of metal may be left alone. Again, a deep and risky operation may be undertaken when a bullet is pressing upon a main nerve, or is in the cavity of a joint. The larger the piece of metal, the more certainly it can be found in a deep operation. Small bullets may be most difficult to detect.

In wounds of the face pieces of metal, even of large size, may unsuspectedly lodge in the antrum, the nares, or the various fossæ, and their existence should always be suspected unless negatived by a skiagram. The lodgment of bullets in bone, especially when near a joint and associated with splintering, usually necessitates removal. But all these cases afford very diverse problems, and I believe I only voice the opinions of many that deeply seated bullets and small pieces of metal are best left alone, unless there are distinct indications for removal, and the deeper the missile is lodged the greater the difficulty the surgeon may find in extraction. When bullets or pieces of shell are superficially situated they can be easily removed, and the same is true when they can be felt with a probe or examining finger at the bottom of the wound of entry. When bullets are lodged in the carpus or tarsus they are usually associated with shattering of the bones, and it is wise to remove them, along with all the "splinters" and fragments of bone which can be detected. The subsequent healing of these wounds is most tedious, and the results often unsatisfactory.

GUNSHOT WOUNDS OF THE JOINTS.

The gravity of these injuries is in proportion to the size of the articulation involved and the amount of damage done to the bones and soft parts. In these cases, septic arthritis of a very severe nature ensues, burrowing abscess soon occurs, and, especially in the case of the ankle or knee, gangrene is apt to ensue. Conservative surgery may be pushed to extremes in the upper extremity, and primary excision of the shoulder and elbow, with very free drainage and flushing, gives good ultimate results, often, indeed, exceedingly good results. Mobility of the parts is always aimed at in the joints of the upper extremity. In the case of the knee, if the articular surfaces are shattered, bony ankylosis in a good position should be aimed at. A stiff, straight knee is surprisingly useful, but a bent joint is the reverse. In a shattered knee, if it be determined to save the limb, all fragments of bone, cartilage, and cloth should be removed, and large tubes inserted into the synovial pouches, especially into the inner pouch, beneath the vastus. Very free and thorough flushing should be carried out. The limb, if possible, should be slung and the flushing maintained daily without moving it from the supporting splint. The pain is always very severe, and this is one of the few instances in which I advocate an occasional injection of morphia and atropine. These cases are difficult to manage, and the patient is often clamorous for amputation, but in a young and vigorous subject ankylosis will almost always ensue if the surgeon persists in his conservative efforts. In the case of the shoulder very extensive resections can be done and yet a useful limb ensue. In a recent case the head of the humerus and parts of the clavicle and scapula were removed with excellent ultimate results. In bullet wounds of the hip, or joints of the pelvis, especially the sacro-iliac joint, I have found great difficulties. It is here very difficult to remove all the shattered bone, and necrosis of the edges of the large portions left is very apt to ensue, and cause subsequent troublesome discharging sinuses. The original wounds may be enlarged and all loose fragments removed, with very free drainage, and any subsequent abscess evacuated. In the long convalescence, exposure of the patient to continuous sun and air, with a full diet, is very important. Most of these cases get well in the end, but "the end" is often far off.

In bullet wounds of the tarsus the subsequent healing is very tedious and troublesome, a sinus through the foot obstinately persisting. The bones become affected with chronic osteitis, and a solid œdema with matted tendons and impaired movement persists. In some of these cases, I believe, a well-executed, subastragaloid amputation would give in the end better results than an attempt to preserve a swollen and deformed foot, upon which subsequent locomotion is painful and distressing.

SECONDARY HÆMORRHAGE.

In the septic and sloughing wounds of the present war this most troublesome and difficult complication is only too frequent. I believe I have seen more of these cases in recent practice than in all my past hospital experience in London. Secondary bleeding in septic amputations is always to be feared, and I think it is fostered by the practice of uniting the flaps at the time of operation. It is far wiser to leave the stump "open" for the first two or three days, packing the cavity with saline-soaked dressings. When the surfaces seem healthy chloroform can be given, and the sutures, previously inserted, tightened and the parts drawn together. I can look back upon at least two cases where bad results occurred through my mistaken policy in attempting too early union of the flaps. Should the main vessel give way, and the bleeding be fortunately controlled in time by the elastic band, it is better to tie the vessel some inches higher up than attempt again to secure its sloughy end. When secondary hæmorrhage occurs from deep septic wounds the parts must be laid open and the danger faced. Plugging, pressure, and "styptics" are only temporary expedients, and they seldom succeed and make subsequent operation more difficult. When the parts are exposed and flushed with hot water the bleeding will often cease. But if the surgeon can detect a definite source he may try to control it. The parts are so disintegrated, the ligature will seldom hold when applied in the usual way; and an excellent device is to take a curved needle and pass it under the tissues, across the course of the vessel, and tie a silk ligature firmly, including some of the soft parts. Forci-pressure is also very useful, and some curved and T-shaped pressure forceps should be in every operating case. These should be applied and left on for four days, and their use will often stop a deeply seated difficult hæmorrhage when nothing else will do it. Acupressure may also be sometimes useful.

In exceptional cases the main vessel above may be tied. Thus, in a case of profuse secondary hæmorrhage from a sloughing bullet wound through the wrist, where the hand

was enormously swollen, I tied the brachial artery. The hæmorrhage lessened and ceased, and the operation markedly relieved the swelling and pain in the hand. Amputation would have been the only other resource. It was an ancient practice to tie the brachial in severe inflammatory conditions of the hand, and I am not sure that the practice is sufficiently resorted to.

A more rare cause of secondary hæmorrhage is the erosion of an artery from pulsating against a "spike" of carious bone. This is apt to occur in the popliteal space. In a case of fracture of the femur in its lower third, which had been dealt with at the Cambridge Hospital, the patient was admitted at Exeter with persistent bleeding from a small sinus near the knee, the hæmorrhage occurring in occasional repeated "bursts." The condition of the parts justified amputation. The fracture was united, but a small hole was found in the popliteal artery, where it impinged upon a projection of carious bone.

EMBOLISM.

Considering the lacerated veins and the soft septic clots in them in, let us say, a bad gunshot fracture, it is astonishing how infrequently embolism occurs. I have seen several very instructive cases of pulmonary embolism—not the extensive embolism of the main vessel leading to death, but small embolism leading to a sudden and acute localised pneumonia. The ordinary signs of consolidation were present, with pleuritic friction, and the symptoms were acute with high intermittent temperature and profuse sweating. The symptoms were very similar to acute tuberculosis, for which, when the trouble is in the apex of the lung, the condition is apt to be mistaken. So far as I was able to ascertain, the expectoration was purulent, and had not the well-known "rusty" or prune-juice appearance. Dr. R. V. Solly found no tubercle bacilli, but abundant streptococci, in the sputa. The cases all did well, after being acutely ill for some days. I have had no case of "secondary" empyema, though primary cases have been treated, after direct wound of the thorax. Neither have I seen any cases of cerebral embolism after injuries of the vessels in the neck.

PERFORATIONS OF BONE BY BULLETS.

A number of these cases have come under notice, especially in the tibia or humerus. Some splintering of bone in the vicinity of the track of the missile is usual, and necrosis along the channel is a common after-result. Sound healing is very tedious, and in one case, where the tibia had to be perforated by the trephine to remove a bullet impacted at the back of the bone, took over four months. When once all dead bone has been removed, fibrosis of granulation tissue will ensue, and a dense sclerosis of bone round the injured part maintains the integrity of the shaft. The only treatment so far as I know in these cases is to expose the patient to sun and air, to feed him well, and to soak the part daily in a saline bath. At intervals of a month or so the cavity in the bone, for there usually is a cavity, should be curetted with a sharp spoon. When no evidence of osseous disease exists strong solutions of silver nitrate should be injected on alternate days. All my cases have finally recovered, but at the expense of great time and trouble and much weariness on the part of the patient.

In the "mastoid operation," which I often formerly performed, I used to dissect up a long flap and pack it down into the cavity. In this way "skin-covering" of the extensive cavity in the bone was certainly brought about. I have adopted this method in one case of cavity in the tibia. I think, on the whole, that a better and stronger bone will result by the exercise of time and patience. In former days I also tried "decalcified" sponge and filling the cavity in a bone with fresh "bone-chips." But I was not impressed with the success of these methods. The same may be said of the injection of liquid paraffin.

TREATMENT OF SINUSES.

The usual cause of an obstinate sinus is the presence of dead bone, and when this is fixed and very deep, as in the pelvis, only time and the use of the curette are of avail. Every effort should be made to remove the cause. It is commonly advised to lay all sinuses open, and when superficial and not involving important parts this practice is justifiable. In deep sinuses I have found the injection of nitrate of silver (20 gr. to the ounce) useful. I have also used the "liquor epispasticus." A still more efficacious remedy is the electric cautery. The wire should be passed to the depths of the sinus and gradually withdrawn, searing its walls. But all these measures are useless if bone, pieces of metal, clothing, or an elusive drainage-tube remain at the bottom. One striking case, where numerous deep sinuses in the groin and buttock had persisted for many months, was finally cured by persistent baths and the injections of the strong silver nitrate carried out by Dr. Robin, of Sidmouth, who then assisted me. Numerous fragments of bone were removed by the curette, and a skiagram showed destruction and disintegration of the head of the femur, with pathological displacement. In this case, had a "great" operation been performed by laying open the sinuses and hip-joint I believe the emaciated and feeble youth would have succumbed. This case is only alluded to shortly as an additional proof that time and patience will usually overcome conditions which may appear quite desperate, and before submitting enfeebled patients of this class to extensive and desperate operations this view of the case should always engage the attention of the surgeon. Sinuses should never be probed without a reason, as to detect dead bone or estimate their depth.

GUNSHOT WOUNDS AND FRACTURES OF THE FACE AND JAWS.

The leading features to remember are the extraordinarily rapid union of wounds in this region and the importance of not uniting the wound in the soft parts over shattered bone and pieces of impacted metal. This is especially likely to occur in the antrum and nares. The bone destruction may be terrible. In one young soldier I removed the upper jaw, half the lower jaw, the palate, part of the ethmoid and the pterygoid plates. The soft parts were united over the huge gap, and the resulting deformity was far less than might have been expected. It is important to preserve the orbital plate of the maxilla, or, if this is impossible, to maintain intact the periosteum and suspensory ligament of the eyeball, or the latter gets displaced downwards. In the "rush" of early cases I had to treat some bad fractures of the jaw without any special apparatus. I had recourse to the old moulded splint of gutta percha and jaw bandage which I had not applied for many years. All loose fragments were removed with forceps, and Mr. Acland gave his aid for the loose and injured teeth. The results in these cases were excellent, and an indication of what can be done with very simple measures in very difficult cases. In fractures of the jaw extensive comminution is very frequent. I think it well to expose the parts by an incision along the inferior border and remove all the fragments of shattered bone. This is very important, or after-suppuration and obstinate sinuses are sure to persist. Pus is very apt to burrow down the neck under the cervical fascia, and I think it well to drain through the submaxillary incision. In past days I have drilled and wired the bones, but I am not sure the results were better than when simply treated by a splint. In these cases, however, the aid and skilful appliances of the dental surgeon and mechanician are very essential, and moulded metal or wire splints very advantageous. In all instances the mouth should be constantly washed out with an antiseptic lotion. Permanent facial paralysis is often found in wounds of the face, and is very unsightly. When the soft parts are extensively blown away the most hideous and distressing deformities ensue. What plastic surgery cannot effect must be remedied by skin-coloured masks. These can often be advantageously supported on a spectacle frame. It is fortunate that an institution is to be opened where the patient and surgeons get the advantage of mechanical skill and appliances, which are only to be found among trained and ingenious surgical mechanicians, and they alone can cope with such cases as these.

INJURIES OF THE NERVES.

These are far more serious and extensive than most of us have ever experienced in civil practice. The division of nerve trunks by glass wounds or accidental stabs were, as a rule, satisfactorily dealt with by one of the various methods of immediate suture. Bullets and pieces of shell unfortunately not only divide the nerves, but smash them, and carry away entire portions. In extreme cases the main nerves, as the brachial plexus or the sciatic, are actually clean blown away in portions. The results are very disastrous. Constant pain, especially when cicatrisation occurs, and

various forms of paralysis below, with serious deformities and "nutritive" changes in the joints, are apt to ensue. Every effort must be made by splints and manipulation to prevent these deformities. But I have found this in practice very difficult to effect. In some extreme cases amputation of the deformed and crippled limb is perhaps the best treatment. Immediate attempts to unite nerves in a septic wound usually fail. If one waits until the parts have healed, and there is no risk of setting free fresh sepsis, one is confronted with difficulties which may be great. The amount of cicatricial tissue and the matted parts make the structures indistinguishable, and when large veins are adherent in the mass, as in the axilla or popliteal space, wounds or tears in them may be inflicted by the most careful operator. The most successful cases are those where a nerve is bound down by scar tissues and can be released. Frequently, also, the loss of nerve substance is so great that transplantation of a portion of nerve from elsewhere has to be adopted. A layer of fascia dissected from the neighbourhood is, I think, the best membrane to surround a divided nerve, should the surgeon be able to unite it. On the whole, my experience of these cases has been distinctly unfavourable. Other surgeons may have had better results.

INJURIES OF THE HEAD.

I have seen a number of scalp wounds and some depressed fractures excellently treated, before they came under my notice, by the surgeons at the front. The patients attributed their escape from death to the use of the metal helmet, which explains the comparative slightness of many of these injuries. So few cases of missiles lodged in the brain have come under notice that I do not feel justified in remarking upon them, and my previous experience of such injuries has been slight. But I wish to reiterate my impression of the excellence of the surgery at the front in the "head cases." In one instance bone had been removed and a wounded lateral sinus plugged. A large granulating wound remained and cerebral pulsations could be seen at its depths. This was closed by implanting flaps of scalp, and the final result was very good, recovery being complete.

WOUNDS OF THE THORAX.

Many of these are superficial, the bullet glancing off the ribs. We have had several cases where the soldier has been shot clean through the thorax. The only evidence of lung trouble has been slight pain and hæmoptysis. All these cases have done well under rest and cleanliness to the superficial wounds. In two cases there was some hæmothorax, but this was not interfered with. I have also seen cases where the bullet had entered over the cardiac area, or great vessels, and yet nothing untoward occurred. These cases are very extraordinary, and it is difficult to explain them. Primary empyema, due to direct wound, has been dealt with by the usual methods, and the cases, though tedious, have done well. A "masterly inactivity" is the best policy in penetrating wounds of the thorax. Septic pneumonia is always to be feared. I have only seen one case hitherto.

WOUNDS OF THE ABDOMEN.

My experience of these injuries has been also small. These serious wounds are often fatal, and of necessity need immediate treatment in the base hospitals. A most instructive article on these cases was published by Mr. Crisp English in THE LANCET of Oct 28th, 1916. p 746. I saw one case where a bullet had entered from behind, perforated the kidney, and escaped anteriorly. Beyond some hæmaturia nothing untoward occurred. In another remarkable case a bullet entered above the pelvis posteriorly and emerged at the inner side of the thigh. Urine passed from the wound in the thigh in large quantities at first, according to the report, but only scantily under my own observation. There were no symptoms of extravasation. I laid the wound in the thigh open for some inches and inserted a large tube. The patient made a good recovery. I have seen no bayonet wounds. These are, no doubt, treated at the front, but I am of opinion that the Germans suffer more from these injuries than our troops.

INJURIES OF THE SPINE.

When the spinal cord is smashed by the missile recovery of motion is hopeless, though some sensation may be found and maintained. The survivors of these injuries will form a large proportion of the inmates of "homes," which I trust may be provided for the heroic sufferers after the war. They need the customary care and nursing familiar to us in similar cases in civil life, especially in the prevention of bedsores and attention to the condition of the bowels and bladder. Caution must be exercised in the prognosis of these injuries. In some of them the cord is really bruised, not severed. The symptoms at first are very complete, and the case appears hopeless. But after some weeks, when effused blood becomes absorbed, recovery begins to set in and may be well-nigh perfect. This has happened in several of my cases, and notably in one man who was shot through the neck. Total paraplegia existed below with diaphragmatic breathing. After many months this patient was able to walk with the aid of a stick, and his complete recovery seemed only a matter of time. I have had other cases where partial recovery only occurred, but the final conditions were better than one might have anticipated from the gloomy appearance of the early symptoms. It is exceedingly difficult to know whether or not to operate in these cases. The operation for fracture dislocation of the spine which I have performed in past years, and which I have more often seen others perform, was, to my mind, usually disappointing in results, and certainly did not have the measure of success some of its enthusiastic advocates claimed. A careful skiagram should always be executed, and if the appearances point to shattered bone and pressure on the cord, this is an argument for operation. But if the cord is smashed by the bullet, no good results can be expected. I think with the utmost care and reflection such operations must be experimental, and it is impossible to promise beforehand what amount of good they may be expected to bring about. Also when the results are good, it is difficult to affirm that they would not also have been as good without operation. This class of operation will always be favoured by those who regard operations as of more certain value than the reparative powers of nature. Indications of pressure on the cord are the best arguments for its adoption.

An important class of injuries to the back and spine are those where the patient is crushed and bruised beneath tons of débris of timber and earth, by the explosion of a mine or the devastations of a "Jack Johnson." In these cases the patient, "when dug out alive," exhibits severe nerve shock, and for weeks or months may be practically unable to move. The spinal muscles are sometimes lacerated. Definite hæmatoma exists, or evidence, in the discolouration of the skin, of extensive bruising. Signs of injury to the cord, as loss of motion or sensation below, are absent. I have suspected in some of the worst of these cases that hæmorrhage between the membranes and the cord has really existed. In other cases the evidence of injury is not so marked. The neurasthenic element is present, and the symptoms remind one of the "railway spine" with which we were familiar in civil practice, and which provided ample material for differences of opinion amongst surgeons, and were a source of emolument to practitioners of the law. In these cases, if rest and massage does not avail, movements of the spine under anæsthesia are often of surprising efficacy. The body should be strongly and repeatedly flexed and extended over firm pillows or sand-bags. Doubtless adhesions about the small joints and deep muscles are ruptured by these manipulations. If any painful spots persist on pressure or percussion the actual cautery should be lightly applied and also has a remarkable influence for good. Exercises and change of air with encouragement usually do the rest. But these cases, if allowed, will remain supine and helpless for an indefinite time, especially when made the objects of injudicious sympathy and provided with cigarettes, novels, and wool-work. They need mental stimulation and encouragement, as well as actual local treatment.

(To be concluded.)

THE LATE MR. C. D. RUDD'S BENEFACTION.—The death of Mr. Charles Dunell Rudd has brought to light the fact that he was the donor of the new buildings of the Mount Vernon Hospital for Consumption and Diseases of the Chest at Northwood. The total cost of this institution on its admirable site, with full equipment for treatment, exceeded £200,000, and it was Mr. Rudd's great wish to see the completion of an extension giving a further 120 beds for women and children. This hope was not realised, as after the foundations had been laid further building was prevented by the outbreak of war.

AN INVESTIGATION INTO THE AGGLUTINATING PROPERTIES OF CERTAIN SERA AGAINST *B. TYPHOSUS* AND *B. ENTERITIDIS* GAERTNER (DELÉPINE, 7160).

BY THOMAS T. O'FARRELL, F.R.C.S. IREL., D.P.H.,
FIRST ASSISTANT IN PATHOLOGY, UNIVERSITY COLLEGE, DUBLIN (N.U.I.); PATHOLOGIST, ST. VINCENT'S HOSPITAL, DUBLIN.

(*From the Pathological Laboratories, University College, Dublin.*)

THE present investigation was undertaken at the suggestion and under the supervision of Professor E. J. McWeeney, as part of the work done at the Bacteriological Department, University College, Dublin, National University of Ireland, in connexion with the scheme of the Medical Research Committee.

A comparatively large number of sera was sent in to this laboratory by the Irish military authorities for the Wassermann test, and as these sera are for the most part taken from men who had received antityphoid inoculation it was thought a good opportunity of estimating their agglutinating power for *B. typhosus* by Dreyer's method, and to find out whether any of them agglutinated a certain strain of Gaertner (Delépine, 7160). As a result of investigations made by Delépine and Dawson[1] with a culture of *B. enteritidis* Gaertner (7160), isolated by the former, the claim is made that this bacillus 7160 is agglutinated by the serum of patients suffering from enteric fever and is unaffected by the sera of antityphoid-inoculated individuals. According to these authors, therefore, 7160 can be used as a valuable means of making a definite diagnosis of enteric fever in a febrile antityphoid-inoculated person when the mere agglutination of typhoid bacilli alone cannot be relied upon. To estimate fully the value of this observation it would be necessary to test the following sera for the presence or absence of agglutinins for 7160: Class A, the sera of normal non-inoculated persons; Class B, the sera of inoculated, though otherwise normal persons; Class C, the sera of non-inoculated enteric fever patients; and Class D, the sera of enteric fever patients who had been previously inoculated.

The sera which were submitted to me for examination fell under Class B—namely, the sera of persons who had received antityphoid inoculation and who were at the time not suffering from enteric fever or food poisoning. The only way in which the persons differed from normal healthy inoculated individuals was that they either had or were suspected of having syphilis. The question as to how far the presence or absence of syphilis may be considered to affect the agglutinin content of a serum will be dealt with later on.

At the beginning of the investigation it was thought sufficient to obtain information as to the date of the last inoculation, together with such clinical data as appeared important during the course of the research. It was soon realised, however, that much would be gained by obtaining more complete details, such as the number of times the men had been inoculated and the existence of any previous history of enteric fever. Also, in view of Tidy's contention[2] "that pyrexia or pyrexial conditions lead to the removal from the serum of agglutinins due to inoculation," the importance as to whether the men were in the secondary (frequently febrile stage) of syphilis became apparent.

I have to express my thanks to the officers of the Royal Army Medical Corps at Portobello Hospital for their kindness in furnishing me with the details of the cases.

Technique.—The method adopted for all cases was the quantitative macroscopic agglutination test of Dreyer, which is advocated by Ainley Walker[3] and others, by means of which the agglutinin content of each serum is stated as the number of standard agglutinin units per 1 c.c. of serum. In the case of *B. typhosus* a standard agglutinable culture was prepared, stored in bulk, and standardised, 250 c.c. being taken as required, each 250 c.c. being again standardised against standard culture and antiserum kindly provided by Dr. Gardner, of the Standards Laboratory, Oxford. The positive results obtained with the sera against the standard typhoid culture are stated as standard agglutinin units per 1 c.c. of serum examined.

In the case of B. Gaertner (7160) a culture was used which had been kindly forwarded by Professor Delépine to Professor McWeeney. From this a uniformly agglutinable formalinised culture was made. This could not, however, be standardised in the same manner as in the case of *B. typhosus* owing to the lack of a standard specific antiserum, so that the results in the case of this micro-organism are expressed as the highest dilution of serum with which agglutination was obtained. This culture was found to give uniform results with positive and negative cases, the positive agglutinations exhibiting the same naked-eye clumping as the Oxford standard agglutinable typhoid cultures did with antityphoid serum. This formalinised 7160 culture was not affected by the Oxford standard antisera for *B. typhosus*, *B. paratyphosus A* and *B*, when put up in the dilutions recommended for standardisation of cultures.

In dealing with a comparatively large number of sera at a time it was found advisable to modify the details of the original Oxford method to some extent, though its general scheme was followed throughout.

The primary 1 in 10 dilution of serum was made with calibrated pipettes, the drop-method being used for the subsequent dilutions. The saline solution for making the further dilutions of serum was kept in a double-controlled burette. This was made by attaching the dropping pipette to a separating funnel (with tap) by means of a short length of rubber tubing, a screw clip being fixed in this connexion. The whole apparatus was fixed in an ordinary burette stand with one holder for the funnel and another to steady the dropping pipette. A double control was thus maintained—viz., (1) the glass funnel tap for the main flow of saline; and (2) the screw clip for regulating the drops.

In practice the advantages of this reservoir dropper can be set down as follows:—(*a*) The dropping pipette is kept vertical and delivers uniform drops at a uniform rate. (*b*) It is easy to manipulate, as many racks full of agglutination tubes can be filled as required by moving each tube in turn beneath the dropper. (*c*) If at any time it is found necessary to stop the flow of saline the funnel tap can be turned off without disturbing the screw clip, which regulates the size of the drop. (*d*) The dropping pipette can be readily detached and used for adding the serum, so that the same dropping pipette is used throughout the experiment.

It was also found that the original zinc racks provided with the Oxford outfit (though extremely useful) take up a large amount of space in a water-bath, and if there be much variation in the size of the agglutinating tubes used the mixtures of saline, serum, and culture, though of the same volume, will stand higher in some tubes than in others, and thus may be partly above the level of the water in the bath. To obviate these two drawbacks a sheet of strong cork half an inch thick was perforated with holes half an inch apart, to hold 15 to 20 rows of five tubes. The tubes are pushed through the cork as far as their rims, and when the whole rack is placed in water it floats, with the important part of the tubes submerged, the cork rack taking up much less space than would be required by the requisite number of zinc racks. Index numbers can be readily marked with a grease pencil on the cork, if it be first rubbed over with a little xylol.

The water-bath was kept at 52° C. for two hours, and the results read off by artificial light.

It may be here noted that by Dreyer's method the variations in the intensity of the agglutination are very striking at different stages of dilution between the strongest positive reaction and a negative. On several occasions zone phenomena were observed—viz., with some sera no agglutination occurred in the 1 in 25 dilution, when marked clumping was present in the 1 in 50 or over.

Material for examination.—The sera were not particularly selected, each batch being dealt with in a routine fashion as they were received. Consequently, in drawing up the results the sera have to be grouped under various heads. The number of specimens of serum examined was 495. With regard to antityphoid inoculation, they may be divided into the following groups:—

Group I.	—Sera of men about whom definite information as to number of inoculations and date of last inoculation was obtained ...	143
Group II.	—Sera of men about whom information as to date of last inoculation only was obtainable	127
Group III.	—Sera of men known to be non-inoculated ...	32
Group IV.	—Sera of men about whom no information as to inoculation was obtainable	64
Group V.	—Repeated examination of sera which had already been examined previously	129

Results.—It is proposed to deal with the results obtained in the following order.

I. *Agglutination results with* B. typhosus.—A. General results (inoculated cases, Groups I. and II.). B. Factors which influence the standard agglutinin content of the sera of inoculated individuals (Groups I. and II.). C. Influence of syphilitic lesions upon the typhoid-agglutinating power of the sera of antityphoid-inoculated men (Groups I. and II.). D. Remarks on the sera of inoculated cases, examined more than once for agglutinins against *B. typhosus* (Groups I. and II.). E. Results with cases known to have not been inoculated (Group III.).

II. *Agglutination results obtained with* B. enteritidis *of Gaertner (Delépine, 7160).*—A. Sera of antityphoid-inoculated individuals (Groups I. and II.). B. Influence of antityphoid inoculation on the agglutinating power of sera for bacillus 7160, Delépine (Groups I. and II.). C. Influence of syphilis on the agglutinating power of sera of antityphoid-inoculated individuals for Delépine, 7160 (Groups I. and II.). D. Remarks on sera (of inoculated cases) examined more than once for agglutinins against Delépine, 7160 (Groups I. and II.). E. Results with cases definitely known to have been uninoculated (Group III.). F. Results with sera of cases about whom information as to inoculation was not obtainable (Group IV.) and total results with 7160 (Groups I., II., III., and IV.).

III. *General results with cases which had a previous history of typhoid fever* (which occurred among Groups I., II., and III.).

IV. *Summary.*

I. AGGLUTINATION RESULTS WITH B. TYPHOSUS.

A. *General Results (Inoculated Cases, Groups I. and II.).*

Total number of sera of inoculated cases examined, 270. These may be divided into two groups—viz.:—

Group I. The sera of men about whom definite information as to number of inoculations and date of last inoculation was obtainable... 143

Group II. The sera of men about whom information as to date of last inoculation only was obtainable 127

Note.—In the above cases the length of time which had elapsed between the date of inoculation and the date of examination was from one month to eight years.

General results: Group I.—Number of sera 143, of which 125 (87·5 per cent.) gave agglutination for *B. typhosus*, and 18 (12·5 per cent.) gave no agglutination.

Group II.—Number of sera 127, of which 112 (88·2 per cent.) gave agglutination for *B. typhosus* and 15 (11·8 per cent.) gave no agglutination.

When the general results of these two groups are combined:—Total number of sera of inoculated cases, 270: of these 237 (87·1 per cent.) gave agglutination with *B. typhosus*, and 33 (12·9 per cent.) gave no agglutination.

Results in Positive Cases: Group I.

No. of cases.	Contained up to—	Per cent. of total.	No. of cases.	Contained up to—	Per cent. of total.
77	25 a.u.	53·9	1	225 a.u.	0·7
25	50 ,,	17·5	1	450 ,,	0·7
10	75 ,,	7·0	1	500 ,,	0·7
5	100 ,,	3·5	1	550 ,,	0·7
2	175 ,,	1·4	1	900 ,,	0·7
1	200 ,,	0·7			

Group II.

33	25 a.u.	26·0	2	250 a.u.	1·6
34	50 ,,	26·7	2	275 ,,	1·6
16	75 ,,	12·6	3	300 ,,	2·3
3	100 ,,	2·3	1	550 ,,	0·8
4	125 ,,	3·2	1	575 ,,	0·8
5	150 ,,	4·0	1	725 ,,	0·8
3	200 ,,	2·3	1	900 ,,	0·8
1	225 ,,	0·8	2	1000 ,,	1·6

Groups I. and II.

110	25 a.u.	40·7	2	275 a.u.	0·7
59	50 ,,	21·8	3	300 ,,	1·1
26	75 ,,	9·7	1	450 ,,	0·3
8	100 ,,	3·0	1	500 ,,	0·3
4	125 ,,	1·4	2	550 ,,	0·7
5	150 ,,	1·8	1	575 ,,	0·3
2	175 ,,	0·7	1	725 ,,	0·3
4	200 ,,	1·5	2	900 ,,	0·7
2	225 ,,	0·7	2	1000 ,,	0·7
2	250 ,,	0·7			

a.u. = Agglutination units per 1 c.c.

B. *Factors which Influence the Standard Agglutinin Content of the Sera of Inoculated Individuals.*

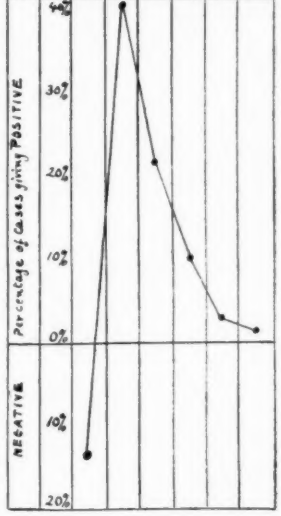
It has been abundantly proved by numerous workers, one of the most recent being Dakeyne,[5] that two factors influence the presence of agglutinins in the blood of inoculated individuals—namely, (1) the time elapsed between date of inoculation and date of examination of blood; and (2) the number of inoculations the person has received. Generally speaking, the more recently men have been inoculated the stronger will be the agglutinating power of their serum for *B. typhosus;* also fewer sera will be met with which may fail to agglutinate this bacillus. In addition, men who have been inoculated twice have a much greater chance of developing and retaining a reaction than those who have been inoculated once.

The majority of these results have been obtained by the microscopical method of performing Widal's reaction, and, as is pointed out by Dreyer and Ainley Walker,[2] the results obtained by different workers are not strictly comparable, as cultures of different strains of the same organisms are well known to vary in their agglutinability. Furthermore, a more or less variable standard of the actual strength of a given serum has to be adopted, such as strong reaction, moderate reaction, &c., with certain dilutions of serum. All workers will agree as to whether a serum gives a positive or negative reaction, and the majority will agree as to the difference between a strong and a weak reaction, but in gauging the finer differences between these two the personal element, together with the varying conditions under which different experiments may be carried out, render the results obtained by different workers not strictly comparable. On this account more stress has necessarily been laid upon the percentage of negatives obtained in one series of cases as compared with another, rather than a comparison of the degree of agglutinating power obtained with various positive sera.

By Dreyer's macroscopic standard method results can be uniformly recorded, and it has the distinct advantage that, in addition to being able to state that a case is positive or negative, it enables one to give an exact estimate as to the strength of a given serum in standard units. In addition, it is possible to estimate accurately the effect of time and the effect of the number of inoculations, on the serum of inoculated individuals which give a positive Widal's reaction.

Influence of number of doses of antityphoid vaccine on agglutinin content of sera of inoculated men.—Firstly it is necessary to determine what is the average agglutinin content of the sera of inoculated persons. This can be studied from the totals obtained in Groups I. and II.: total number of inoculated cases, 270. On reference to Chart 1 it will be seen that the average percentage of negatives is 12·9 per cent. of the total. The remaining 87·1 per cent. sera which gave positive agglutination for *B. typhosus* may be divided up as follows:—40·7 per cent. gave up to 25 agglutinin units per 1 c.c.; 21·8 per cent. gave up to 50 units; 9·7 per cent. gave up to 75 units; 3·0 per cent. gave up to 100 units; and 1·4 per cent. gave up to 125 units. After this, comparatively few sera gave higher agglutinin units.

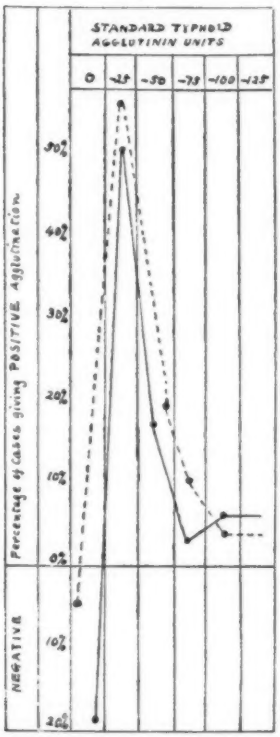
CHART 1.



From this it will be seen that the greater number of sera giving positive agglutination gave only up to 25 agglutinin units; after this the percentage of those giving more units drops rapidly until it is found that sera containing more than 125 agglutinin units form but a small percentage of cases.

Having determined the average agglutinin content of the sera of 270 inoculated persons, we can analyse the average agglutinin content of the sera of persons inoculated once and those inoculated twice. This can be done from an analysis of Group I.: Total number of sera Group I., 143; sera of those who had been inoculated once, 43; sera of those who had been inoculated twice, 70. On reference to Chart 2 it will be seen that: (1) The sera of those inoculated once gave a higher percentage of negatives, 20·9 per cent., than those inoculated twice, 4·2 per cent.; (2) cases inoculated twice form a higher percentage of cases giving 25 agglutinin units (viz., 55·8 per cent.) than those inoculated once (51·2 per cent.); (3) although the total percentage of cases giving 50 to 75 agglutinin units becomes small in each case the balance is in favour of those twice inoculated—namely, 18·6 per cent. and 10·0 per cent. in those twice inoculated, as compared with 16·3 per cent. and 2·3 per cent. in those inoculated only once. After this the number of sera giving higher numbers of agglutinin units becomes so small that a comparison cannot be drawn, but generally there appears to be not much difference between the sera of those once or twice inoculated.

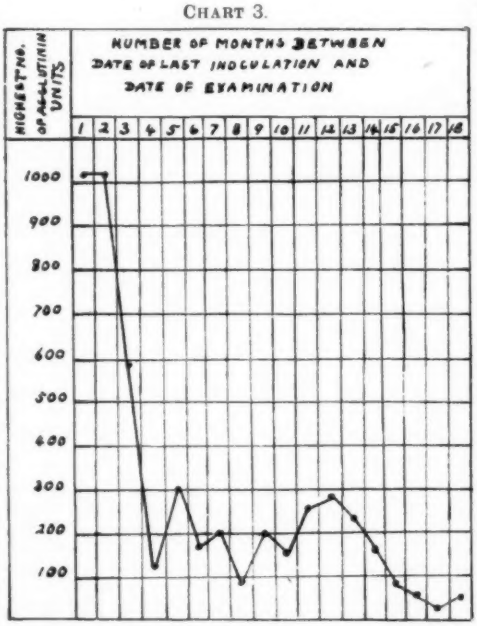
CHART 2.



The continuous line indicates those inoculated once; the interrupted line those inoculated twice.

Influence of number of inoculations and lapse of time on agglutinin content of sera.—The influence of lapse of time can be ascertained by comparing the sera showing the highest titre, stated in terms of agglutinin units, obtained in the various months which have elapsed since the administration of antityphoid inoculation. In the first place it is necessary to determine what are the highest titres obtained in the sera of inoculated individuals taken as a whole. This may be studied from the total figures of Groups I. and II. Total number of inoculated cases, 270. On reference to Chart 3 it will be seen that at 1 to 2 months the highest number of agglutinin units obtained was 1000. From this maximum they drop suddenly at the third month to 575, and then with another sudden drop at the fourth month to between 300 and 100, where they remain up to the fourteenth month. After this they are generally found below 100 till they disappear from the serum altogether. As to when agglutinin units do disappear it would be difficult to say from the cases in this investigation, but in certain cases up to 50 agglutinin units were found after 3 years, 25 after 4 and 5 years, though none were present in one case after 8 years since antityphoid inoculation had been received.

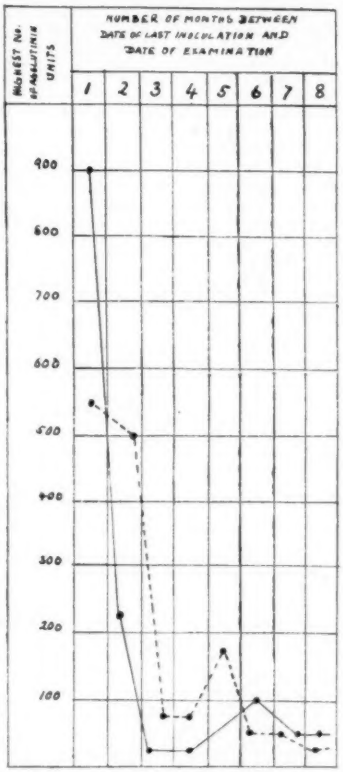
CHART 3.



Note.—One case in Chart 3 has been omitted. This man was stated to have been inoculated 11 months prior to the time the serum was examined. His serum contained a very unusual number of agglutinin units—viz., 714. It is probable that some error arose in noting the date of inoculation.

How is the maximum number of agglutinin units per month, since inoculation was received, affected by the number of inoculations the person has received? An analysis of the sera examined under Group I. has been made and set down on Chart 4. Group I., inoculated cases, 143. Sera of those who have been inoculated once, 43; inoculated twice, 70. This chart seems to bear the following interpretation. In the second, third, fourth, and fifth months after inoculation the serum of those inoculated twice is richer in agglutinins than the serum of those who have been only once inoculated. This would probably be also the case during the first month, but unfortunately the number of sera received from men so recently inoculated was very small. After the fifth month there is but little difference noticeable between the cases which had received one or two inoculations.

CHART 4.



Continuous line, those inoculated once; interrupted line, those inoculated twice.

With regard to the cases which have been inoculated three or more times, the figures are too small for comparison. They comprised the following: Inoculated three times, 20; inoculated four, five, or six times, 10. (See Table I.)

Conclusions as to effect of time and number of inoculations received on agglutinin unit content of sera of inoculated cases.—During the first month after inoculation the maximum number of agglutinin units are obtainable. The highest number of units falls rapidly after the second and during the third month. Between the fifth to the fourteenth month fairly high agglutinin unit content may be met with—viz., between 100 and 300. After 15 months the agglutinin units do not rise above 100. The sera of men inoculated twice give fewer negatives and more positive reactions; more cases give 25, 50, and 100 agglutinin units. Higher titres are obtained during the second, third, fourth, and fifth months after inoculation. Generally speaking, the sera of these twice inoculated are stronger during the second, third, fourth, and fifth months, and the results are more lasting in those twice

than those only once inoculated. Therefore, so far as the presence of agglutinins can be regarded as an index of a person's resistance against typhoid fever, a man twice inoculated shows strong immunisation up to the fifth month

TABLE I.—*Group I.: Cases Inoculated Three, Four, Five, and Six Times.*

Months between date of inoculation and date of examination.	Number of sera examined.	Agglutinin units.				Months between date of inoculation and date of examination.	Number of sera examined.	Agglutinin units.				
		-0	-25	-50	-75			-0	-25	-50	-75	-100
	Inoculated 3 times.						Inoculated 4 times.					
2	1	...	...	1	...	3	1	1	...	...	...	...
4	2	...	1	1	...	5	1	...	1	...	...	...
5	1	...	1	...	...	7	2	...	2	...	...	...
6	1	...	1	...	...	8	1	1	...	...	...	...
7	1	...	...	...	1		Inoculated 5 times.					
9	3	...	3	...	...	1	1	...	...	...	...	1
10	2	1	1	...	...	8	2	...	2	...	...	...
11	3	1	1	1	...	13	1	...	1	...	...	...
13	1	...	1	...	...		Inoculated 6 times.					
20	1	...	1	...	...	18	1	...	...	1	...	...
24	2	...	...	1	1	Totals...	10	2	6	1	...	1
5 years.	1	1	...	...	...	Grand total for cases inoculated 3, 4, 5, and 6 times.						
5 years.	1	1	...	...	...		30	6	16	5	2	1
Totals...	20	4	10	4	2	Per cent.	...	20·0	53·3	16·6	6·7	3·4

after the last inoculation, and is in a better position to withstand infection up to 14 months than a person only once inoculated.

C. *Influence of Syphilitic Lesions upon the Typhoid-agglutinating Power of the Sera of Antityphoid-inoculated Men.*

In view of Tidy's contention[3] "that pyrexia or pyrexial conditions lead to the removal from the serum of agglutinins due to inoculation," the following arrangements of the results obtained with the sera of antityphoid-inoculated men in relation to the clinical condition, and the presence or absence of a positive Wassermann test, may prove of interest. Professor McWeeney has kindly provided me with the clinical data and the results of the Wassermann test carried out by him. To make a fair analysis it is proposed to eliminate 42 sera from the total 270 (Groups I. and II.), so as to deal only with 228 which gave either a distinct + 3 or + 4 Wassermann or a distinct negative, and to include only those cases about which full information as to the stage of the syphilitic lesion (primary or secondary) was available.

Total number of sera of antityphoid-inoculated men who either had or were suspected of having syphilis, 228. These may be divided into two sections (Table II.):—Those which gave a positive Wassermann, 105 (Section I.), and those which gave a negative reaction, 123 (Section II.).

TABLE II.

Section I.: Positive Wassermann. Section II.: Negative Wassermann.

Lesions.	No. of cases.	Positive for *B. typhosus*	Negative for *B. typhosus*	Lesions.	No. of cases.	Positive for *B. typhosus*	Negative for *B. typhosus*
Primary ...	59	52 (84·7%)	9 (15·3%)	Suspected primary	100	90 (90·0%)	10 (10·0%)
Secondary	46	44 (95·6%)	2 (4·4%)	Suspected secondary	23	19 (82·6%)	4 (17·4%)
Totals ...	105	94 (89·4%)	11 (10·6%)	Totals ...	123	109 (88·6%)	14 (11·4%)

General results.—From the foregoing it will be seen that the presence of a positive Wassermann does not influence the agglutinating power of the serum of inoculated individuals; 89·4 per cent. of those giving a positive Wassermann reaction, and 88·6 per cent. of those giving a negative Wassermann reaction, agglutinating *B. typhosus*. Further, although the number of sera is small for statistical purposes, it will be noticed that the sera of patients with secondary syphilitic lesions (which are occasionally accompanied by some rise in temperature) appear to agglutinate typhoid in a higher proportion (95·6 per cent.) than the sera of those cases suffering from primary lesions (84·7 per cent.).

D. *Sera Examined More than Once for Standard Typhoid Agglutinin Units (Groups I. and II.).*

To judge properly the observations made on the sera examined more than once it is necessary to refer to the paper by Dreyer, Ainley Walker, and Gibson[4] in order to form an idea as to what variations in titre may be expected in the sera of typhoid fever patients. According to these writers, the main curve in the course of agglutination in a case of typhoid fever is indistinguishable in form from the curve obtained by experimental inoculation with antityphoid vaccine, though its *maximum* is *lower* and its *decline* more *rapid* than is the case in the inoculated subject. In a chart they plot a curve of the agglutination titre for *B. typhosus* from the time agglutinins appear in the serum in an actual case of typhoid fever. The curve is represented as the highest dilutions of serum with which agglutination was obtainable. For the sake of comparison we may provisionally take these dilutions as giving standard agglutination and take the factor 5·0 as representing the factor for the standard culture. In this manner, analysing the chart we get:—

During the first 14 days the agglutinins rapidly rise from 0 to 1 in 1250 = units 250.

During the following—

8 days the agglutinins rapidly fall to 1 in 550 = units 110.

24 days the agglutinins gradually fall to 1 in 150 = units 20.

20 days the agglutinins very gradually fall to 1 in 75 = units 15.

Therefore, in the first two weeks the agglutinins rise quickly to a maximum of 250 units, in the subsequent week they drop by 140 units, and during the three weeks following this they drop by 90 units. Thus, in a period of six weeks the agglutinin units undergo violent fluctuation.

The results obtained with the sera of inoculated individuals (not suffering from active typhoid fever) in the present investigation are set down in Tables III., IV., V., and VI. Number of sera of inoculated cases examined more than once, 75. They may be divided up as follows: Sera which gave (1) steady negatives, 9; (2) steady positive titres, 11 (Table III.); (3) a rising titre, 16 (Table IV.); (4) a falling titre, 26 (Table V.); and (5) a certain amount of fluctuation, 13 (Table VI.). To describe these in detail:—

1. Sera which gave a steady negative, 9; each of these was examined twice and one three times, a negative being obtained each time.

2. Sera which gave a steady positive titre, 11 (Table III.). These gave exactly the same reading to the decimal place (with the exception of one) at the second examination. Two of these sera were examined a third time with exactly similar results. The intervals between the examinations were from one to five weeks.

3. Sera which gave a rising titre, 16 (Table IV.). One of these was examined a third time and still showed a slight rise in titre. The figures obtained over a period of 11 weeks were 5·3, 13·4, and 25·0 agglutinin units. In this case the period which had elapsed between the date of inoculation and the date of the first examination was nine months.

In all these cases the difference between the two readings was well below 50 agglutinin units, except one which showed a difference of 71 units. This case had been inoculated three months previously, when agglutinins are rapidly on the wane, and though it is not justifiable to base a theory on a few cases, it would appear that when the agglutinins, the result of inoculation, are falling, after reaching their maximum, instead of coming down in a straight line, they fall in a somewhat irregular fashion, that is with small secondary up and down waves, these irregularities being more marked in the earlier months after inoculation than in the later months, when the secondary waves become, as it were, flattened out. There is some evidence of such occurrence in the subsequent Table VII. where the sera show slight variations at repeated examinations. The suggestion, therefore, that the main curve after inoculation is a rise and then a fall, but that this line has secondary curves on the down grade, where occasionally the serum either remains steady at its titre or perhaps rises and then falls. The titre of the serum, though falling, recovers itself, as it were, at intervals on its downward route.

TABLE III.

Months between date of inoculation and date of 1st examination.	Interval between examinations.											
	One week.			Two weeks			Three weeks			Five weeks		
	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.
2	44·6	44·6	0	...	...	...	...	...	...	...	...	...
3	53·7	53·7	0	...	...	.	...	...	...	...	...	...
6	8·9	8·9	0	...	...	...	10·7	10·0	0·7	...	...	...
9	5·3	5·3	0	...	...	...	...	...	...	...	...	...
12	...	...	...	10·6	10·6	0	...	...	...	10·7	10·7	0
17	...	...	...	5·3	5·3	0	...	...	...	...	...	...
19	...	...	...	10·0	10·0	0	...	...	...	...	...	...
19		...	...	44·6	44·6	0	...	...	...	...	...	...
5 years	5·3	5·3	0	...	...	...	...	...	...	...	...	...

TABLE IV.

Months between date of inoculation and date of 1st examination.	Interval between examinations.																				
	One week.			Two weeks.			Three weeks.			Four weeks.			Five weeks.			Ten weeks.		
	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.
3	285·6	357·1	71·5	...	...	...	28·6	60·0	31·4	...	...	...	Neg.	13·4	13·4	...	...	...			
6	...	...	...	...	...	...	...	...	...	28·6	50·0	21·4	...	...	...	...	...	...			
7	...	...	...	26·5	28·4	1·9	...	...	...	...	...	...	...	...	...	...	...	...			
8	Neg.	5·3	5·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
9	...	...	...	5·3	13·4	8·1	Neg	8·9	8·9	...	...	...	13·4	28·6	15·2	...	...	...			
12	8·9	44·6	35·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
12	50·0	60·0	10·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
13	...	...	...	10·0	25·0	15·0	...	...	...	...	...	...	...	...	...	...	...	...			
18	...	...	...	...	...	...	...	...	...	...	...	...	5·3	10·7	5·4	21·5	50·0	28·5			
19	...	...	...	...	...	...	5·3	10·6	5·3	...	...	...	...	...	...	...	...	...			
20	10·0	20·0	10·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			

In any event, in the absence of a violent upward rise in the agglutinin unit content during a short time, these results would not lead one into the error of making a diagnosis of typhoid fever. It must be remembered that in a recently inoculated case the titre of the serum is rapidly rising or falling, and therefore the larger the number of agglutinin units one finds in such a serum the greater will be the difference between two readings taken at an interval of, say, three weeks. Fortunately for diagnostic purposes, this case is unlikely to be met with owing to the extreme rarity of typhoid fever occurring in such a recently inoculated individual.

One other point might also be mentioned—namely, in a case suspected of typhoid fever, information should be obtained as to how many antityphoid inoculations the patient had received, as in the earlier part of this paper it will be remembered that men who had been once inoculated are apparently less liable to maintain their agglutinins at a steady high titre than those inoculated twice. Finally, it is interesting to note that three sera of this series—namely, those giving a rising titre—showed no agglutination on the first examination, whereas on the second examination agglutinin units made their appearance—namely, 5·3, 8·9, 13·4—the second examination having been carried out one, three, and five weeks after the first examination. These three sera were taken from men who had received antityphoid inoculation three, eight, and nine months previously respectively.

4. Sera which gave a falling titre, 26 (Table V.). Three of these were examined a third time and one of them on a fourth occasion. These subsequent examinations showed the titre to be still falling.

(*a*) Inoculated 6 months previously, during a period of 6 weeks they gave 71·4, 53·5, 44·6 units.
(*b*) Inoculated 14 months previously, during a period of 15 weeks they gave 142·8, 26·8, 3·0 units.
(*c*) Inoculated 10 months previously, during a period of 15 weeks they gave 25·0, 17·8, 8·9, 5·0 units.

Generally speaking, the fall in standard agglutinin content was gradual, but with the sera of cases more recently inoculated the titre dropped more suddenly, particularly when the interval between the first and second examination was so long as ten weeks. This is what might be expected, because after the maximum has been reached the decline in titre is more rapid in the earlier months than in the later months following inoculation. There is one exception in this set of sera—namely, the serum of a man who was stated to have been inoculated so long as 14 months previously. This man showed a comparatively high agglutinin content: 142·8 at the first examination and only 26·8 after two weeks. Unfortunately, this man was lost sight of before the date of his inoculation could be verified, but it appears probable that he had been inoculated much more recently, judging by the comparatively high agglutinin content and the sudden drop in the titre of his serum. Here again the ascertaining of the date of inoculation and the number of inoculations received appears to assume a certain amount of importance in drawing conclusions from the variations in the standard agglutinin content of the serum in successive examinations.

5. Sera which gave a certain amount of fluctuation, 13 (Table VI.). These may be divided into: Sera which gave (*a*) a steady titre followed by a fall in titre, 2; (*b*) a rising titre followed by a steady titre, 2; (*c*) a rising titre followed by a falling titre, 2; (*d*) a falling titre followed by a rising titre, 5; and (*e*) a steady titre followed by a rise with a subsequent fall, 1. These numbers are too small to admit of any conclusions, but they show that slight variations are to be met with which are comparable to the sera of Tables IV. and V. This may be due to individual pecularity, the existence of which is pointed out by Dakeyne,[5] or it may represent the secondary curve inset in the main agglutination curve in the titre of the sera of inoculated persons as previously suggested.

TABLE V.

Months between date of inoculation and date of 1st examination.	Interval between examinations.																							
	One week.			Two weeks.			Three weeks.			Four weeks			Five weeks.			Six weeks.			Eight weeks.			Ten weeks.			13 weeks.		
	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.	1st reading.	2nd reading.	Difference.
1	...	...	...	80·5	26·8	53·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	71·4	44·6	26·8	...	...	...	...	...	...	...	...	...	106·3	31·1	75·2	446·4	107·5	338·9	...	...	...
3	...	...	...	68·4	44·6	23·8	57·0	22·3	34·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4 & 5	...	...	...	...	...	...	35·6	13·4	22·2	57·0	35·7	21·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	13·4	5·3	8·1	13·4	10·7	2·7	...	...	...	...	...	...	285·6	71·4	214·2	53·7	13·4	40·3	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	71·4	5·5	17·9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	89·2	71·4	17·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	44·6	21·5	23·1
9	20·0	10·0	10·0	...	...	...	178·5	133·9	44·6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	26·5	14·2	12·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	25·0	17·8	7·2	...	...	...	...	...	...	5·3	Neg	5·3	...	...	...	...	...	...
12	44·6	5·3	39·3	...	...	...	...	...	...	...	...	...	...	...	...	2·1	Neg	2·1	...	...	...	...	...	...	...	...	...
12	68·4	44·6	23·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	17·8	13·4	4·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	142·8	26·8	116·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	8·9	3·5	5·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE VI.

Months between date of inoculation and date of first examination.	First reading.	Serum examined after— 1st week.	2nd week.	3rd week.	4th week.	6th week.	8th week.	9th week.	11th week.	14th week.	15th week.	16th week.	18th week.
Steady titre followed by a falling titre.													
5	44·6	44·6	...	22·3	...	...	...	...	...	...	...	...	...
10	44·6	44·6	...	32·1	...	...	...	...	28·6	...	...	...	...
Rising titre followed by a steady titre.													
12	8·0	17·8	22·3	22·3	...	...	...	...	...	...	...	...	...
16	10·6	...	13·4	...	...	...	...	...	...	25·0	25·0	...	...
Rising titre followed by a falling titre.													
6	8·9	17·8	...	...	13·4	...	...	...	...	...	...	...	...
13	14·2	...	22·3	...	8·9	...	...	...	...	5·3	...	...	...
Falling titre followed by a rising titre.													
2	178·5	...	...	...	...	...	...	...	...	53·7	...	50·0	100·0
2	215·0	...	53·5	...	107·0	...	...	...	...	...	...	...	...
7	28·6	...	10·7	...	...	31·2	...	...	...	...	...	...	...
8	22·3	8·9	...	...	13·4	...	...	...	...	...	...	...	...
10	142·8	17·8	...	26·8	...	...	...	...	...	...	...	...	...
2 years.	53·7	...	...	...	28·6	...	...	100·0	...	...	...	...	...
Steady titre followed by a rise and then a fall.													
11	44·6	44·6	71·4	35·7	...	...	13·4	...	...	...	...	...	...

E. *Cases definitely known to have been Uninoculated: Sera of Group III.*

Number of cases, 32. Of these, 3 were positive for *B. typhosus* and 29 were negative. Of the 3 positive cases, 2 contained 13·4 agglutinin units (Ref. Nos. 33/24.3.16, 11/31.3.16); 1 contained 125 agglutinin units (Ref. No. 13/23.6.16).

With regard to the non-inoculated case, which gave 125 agglutinin units, the specimen was received on two occasions with an interval of a week and gave exactly the same reading. It did not affect 7160. Inquiries were instituted and it was positively stated that this case had not been injected and never had typhoid fever. The fæces were obtained and plated out, but no non-lactose fermenters were found. This case is remarkable in giving such a high agglutinin content and is similar to the case described by Dreyer, Ainley Walker, and Gibson.[4] The serum in their case agglutinated typhoid up to 1 in 1250 dilution though the man had not been inoculated, denied that he ever had typhoid fever, and the writers failed to find typhoid bacilli in the fæces or urine.

With regard to the other two cases, 33/24.3.16 and 11/31.3.16, which gave 13·4 agglutinin units, no answer has yet been received to inquiries.

II. AGGLUTINATION RESULTS WITH B. ENTERITIDIS OF GAERTNER (DELÉPINE, 7160).

A. *Sera of Antityphoid-inoculated Men (Groups I. and II.).*

Number of sera, 270, of which 53, or 19·6 per cent., were positive, and 217, or 80·4 per cent., negative. Of these 53 positive sera, 30 agglutinated 7160 up to 1 in 25 dilution, 15 up to 1 in 50, 5 up to 1 in 125, and 3 up to 1 in 250. No agglutination was observed in any dilution higher than 1 in 250.

B. *Influence of Antityphoid Inoculation on Agglutinating Power of Sera for B. 7160, Delépine (Groups I. and II.).*

As none of the 53 sera which agglutinated 7160 (Groups I. and II.) suffered from active symptoms of enteric fever or from food poisoning, so far as could be ascertained, the question arises as to whether the presence of Gaertner agglutinins in these sera is to be ascribed to the antityphoid inoculation. If such influence were exerted it is highly probable that the length of time that had elapsed since inoculation would have some effect on the agglutinating power of 7160. With the object of revealing such influence (if it existed) Table VII. was drawn up. It shows the titre of the sera for 7160 and the number of months which had elapsed since antityphoid inoculation had been performed. It will be seen from this Table VII. that the length of time which had elapsed since a patient has been inoculated against *B. typhosus* exerts no influence over the clumping power of his serum for 7160, marked agglutination being obtained with various sera whether the men had received inoculation one month or 25 months previously.

TABLE VII.

Number of months between date of inoculation and date of examination.	Number of sera agglutinating 7160.	Titre of sera against 7160. 1 in 25.	1 in 50.	1 in 125.	1 in 250.	Number of months between date of inoculation and date of examination.	Number of sera agglutinating 7160.	Titre of sera against 7160. 1 in 25.	1 in 50.	1 in 125.	1 in 250
1	5	2	2	1	...	12	11	6	3	1	1
2	3	1	2	...	...	13	3	2	...	1	...
3	4	1	2	...	1	14	1	...	...	...	1
4	6	5	...	1	...	15	1	1	...	...	...
5	2	2	...	...	...	16	1	...	...	1	...
6	4	3	1	...	...	17	...	...	...	...	...
7	4	2	2	...	...	18	1	1	...	...	...
8	...	...	...	...	...	19	1	1	...	...	...
9	2	1	1	...	...	25	1	1	...	...	...
10	2	1	1	...	...						
11	1	...	1	...	...	Totals...	53	30	15	5	3

C. *Influence of Syphilis on Agglutinating Power of Sera for 7160.*

An analysis of the 7160 agglutination results has been made out in order to see whether active syphilis influences the behaviour of the sera in any way. Sera of Groups I. and II.: 270 sera of inoculated individuals. As before, 42 cases must be eliminated, only those cases which gave a +3 or +4 Wassermann, and about which full clinical details were available; this leaves 228 cases to be examined. (Table VIII.) These cases may again be divided into two sections: those which gave a positive Wassermann, 105 (Section I.); and those which gave a negative reaction, 123 (Section II.).

TABLE VIII.

Section I.: Positive Wassermann. Section II.: Negative Wassermann.

Lesions.	No. of cases.	Positive for 7160.	Negative for 7160.	Lesions.	No. of cases	Positive for 7160.	Negative for 7160.
Primary...	59	17 (28·8%)	42 (71·2%)	Suspected primary	100	16 (16·0%)	84 (84·0)%
Secondary	46	12 (26·0%)	34 (74·0%)	Suspected secondary	23	3 (13·0%)	20 (87·0)%
Totals ...	105	29 (27·6%)	76 (72·4%)	Totals ...	123	19 (15·4%)	104 (84·6%)

From Table VIII. it would appear that syphilis, as evidenced by the presence of a positive Wassermann, does exert some influence in increasing the agglutinating property of the serum of the subject for 7160. Those having a positive Wassermann gave 27·6 per cent. positives for 7160 whereas those having a negative Wassermann gave 15·4 per cent. positives for 7160, a difference of 12·2 per cent. Whether this difference is only apparent or real, it forms a contrast with the results obtained when the typhoid-agglutinating power of these sera is subjected to a similar analysis, those sera having a positive Wassermann showing practically no difference to those having a negative Wassermann in their agglutinating power to *B. typhosus*. It must be taken into consideration that a far larger number of sera of inoculated individuals (87·1 per cent.) agglutinate *B. typhosus* than agglutinate 7160 (19·6 per cent.), and therefore probably the results are not strictly comparable.

D. *Sera of Inoculated Cases (Groups I. and II.) examined more than once against Gaertner. 7160*

Number of sera, 75. These may be divided up as follows Sera which gave (1) steady negative, 62; (2) steady positive, 3; (3) a rising titre, 3; and (4) a falling titre, 7. To describe these in detail:—

1. Sera which gave steady negatives, 62. Of these 43 were examined twice; 11 on three occasions; 6 four times; and 2 five times. Two of the sera examined twice (Ref. Nos. 7/31 3.16 and 17/2 6.16) had a history of previous typhoid fever, the first 15 years ago and the second 16 years ago.

2. Sera which gave steady positives, 3. These were each examined on two occasions and gave the same reading each time—viz., positive in 1 in 25 after one week's interval, in 1 in 50 after three weeks' interval, and in 1 in 125 after one

week's interval. One of them, Ref. No. 9/21 1.16, which agglutinated 7160 in 1 in 125 dilution, had a history of typhoid 18 years ago. His serum did not affect *B. paratyphosus A* or *B*. He had never suffered from food poisoning. He had received antityphoid inoculation nine months before the first specimen was examined, and gave a slightly falling titre for *B. typhosus*, 26·5 and 14·2 agglutinin units per 1 c.c. of serum.

3. Sera giving a rising titre. Of these Ref. No. 12/10.3.16 was examined three times during the course of four weeks. The first two specimens failed to agglutinate 7160, but the third time it agglutinated 7160 in 1 in 25 dilution. He had received antityphoid inoculation two months previously and showed a slightly falling titre for *B. typhosus*. The second serum, Ref. No. 27/9 6.16 rose from a positive in 1 in 25 dilution at the first examination to a positive in 1 in 50 at the second after an interval of a week. This serum had no effect on *B. paratyphosus A* or *B*, and gave a slightly rising titre to *B. typhosus*. This man had been inoculated 12 months prior to the first examination. The third, Ref. No. 32/4.2.16, rose from a positive in 1 in 125 dilution to 1 in 250 after an interval of three weeks. There was a falling titre for *B. typhosus*. He had been inoculated nine months prior to the first examination. The full clinical details of this case have not yet come to hand.

4. Sera which gave a falling titre. Of these 4 fell from a positive in 1 in 25 dilution to 0 during a period of from two to three weeks. One of them was examined four times subsequently with a negative result. These cases had received antityphoid inoculation 2, 3, 4, and 7 months prior to the first examination. Three sera fell from a positive of 1 in 50 to 0. One of them was examined on two subsequent occasions during a course of three weeks and proved negative for 7160.

E. *Results of Cases Definitely Known to have been Uninoculated (Group III.). Agglutinin Results with 7160.*

Number of cases, 32. Of these, 6 agglutinated and 26 did not agglutinate 7160. Of the 6 positive cases, 4 agglutinated up to 1 in 25 dilution, 1 up to 1 in 50, and 1 up to 1 in 250.

The case which agglutinated 7160 in 1 in 250 dilution (Ref. No. 21/4 2 16) was received three times for examination with a one-week interval. It gave a positive reaction on three occasions as follows: 1 in 250, 1 in 125, and 1 in 250. The serum in this case did not agglutinate *B. typhosus*, *B. paratyphosus A* or *B*. He had never had typhoid fever and did not suffer from symptoms of food poisoning.

The case which agglutinated 7160 in 1 in 50 dilution (Ref. No. 25/9.6.16) was received twice subsequently at one-week and four-week intervals, but on the second and third occasions the serum failed to affect 7160 and was negative for *B. typhosus* and *B. paratyphosus A* and *B*. No non-lactose fermenters were discovered in the fæces. This case had typhoid in 1906—that is, ten years prior to the date of the examination of the serum.

F. *Results with Sera of Cases about Whom Information as to Inoculation was Not obtainable (Group IV.).*

Although it is primarily intended to deal with the 7160 agglutinations of this Group IV., it would be well to consider what was their probable relation to inoculation.

Agglutination results with B. typhosus.—Number of cases 64; 30 gave a positive and 34 gave a negative result. Of the 30 positive cases 16 contained up to 25 agglutinin units per c.c., 7 up to 50 units, 4 up to 75 units, 1 up to 100 units, 1 up to 125 units, and 1 up to 300 units. The percentage of negative cases is much higher than is found among inoculated cases, so it is probable that a large number of them had not received any inoculation.

Agglutination results with 7160.—Number of cases 64; of these 13 were positive and 51 negative for 7160. Of the 13 positive cases 4 agglutinated up to 1 in 25, 6 up to 1 in 50, 2 up to 1 in 125, and 1 up to 1 in 250.

Note.—Nine of these cases were examined more than once with the following result:—(*a*) Negative 7, examined twice 6, examined three times 1; (*b*) Positive at first examination, subsequently negative 1 in 25, 1; (*c*) Negative at first reading, and subsequently positive 1 in 50, 1.

Total Agglutination Results with Gaertner (Delépine, 7160).

As antityphoid inoculation bears no relation to the agglutinating power of a serum for Gaertner (Delépine, 7160), the results of the sera of each group of the present series of cases can be taken collectively as follows:—

	No. of cases.	Agglutinated 7160.
Groups I. and II., inoculated cases	270	 53
Group III., cases known to have been not inoculated	32	 6
Group IV., cases about whom information as to inoculation was not obtainable ...	64	 13
	366	72 (19·6%)

The actual titre with which agglutination was obtained is given in Table IX.:—

TABLE IX.

—	Number of sera.	Positive sera.	Dilution of serum. 1 in 25.	1 in 50.	1 in 125.	1 in 250.
Groups I. and II. ...	270	53	30	15	5	3
Group III.	32	6	4	1	0	1
Group IV.	64	13	4	6	2	1
Totals	366	72	38	22	7	5
Per cent.	...	19·6	10·4	6·0	1·9	1·3

Therefore, any deductions one might seek to base upon the behaviour of the sera of persons who form the 366 units of the Groups I., II., III., and IV. are liable to an error of 19 6 per cent. if so strong a serum as 1 in 25 be taken. As the dilution is increased the error grows less—namely, 9 2 per cent. when a 1 in 50 dilution is taken, 3·2 per cent. with 1 in 125, and 1·3 per cent. with 1 in 250. Above a 1 in 250 dilution the error disappears altogether. These results are interesting in view of the work recently published by Ritchie,[6] where an analysis of the "normal" mean agglutination of sera for bacilli of the typhoid-dysentery group is made and where deductions have been drawn as to how far dilution of serum is necessary before positive agglutination can be regarded as evidence of a particular disease. He points out that such a high dilution as 1 in 128 cannot be relied upon for diagnostic purposes in the case of *B. dysenteriæ* (Flexner) infection, whereas in the case of *B dysenteriæ* (Shiga). *B. typhosus*, *B. paratyphosus A* and *B* agglutination with a much lower dilution of serum can be taken as diagnostic.

III. GENERAL RESULTS WITH CASES WHICH HAD A PREVIOUS HISTORY OF TYPHOID FEVER (IN GROUPS I., II., AND III.).

Total number 13. Of these 9 had been inoculated with typhoid vaccine and 4 had not been inoculated (see Table X.). Three sera agglutinated 7160. These were also tested against paratyphoid A and B, with a negative result.

TABLE X.

—	Number.	Previous history of typhoid fever.	Antityphoid inoculation. No. of	Antityphoid inoculation. Date of last.	Effect on *B. typhosus*. Units.	Effect on 7160. Dilution.	Effect on *paratyphosus A* and *B*	Reference number.
Inoculated.	1	4 mths	2	9 mths.	None	None	...	10/28.1.16
	2	6 years.	2	18 ,,	5·3	,,	...	14/7.4.16
	3	8 ,,	2	15 ,,	2·0	1 in 25	None	30/ 6.6.16
	4	9 ,,	2	13 ,,	5·3	None	...	8/26.5.16
	5	15 ,,	2	5 ,,	13·4	,,	...	7/31.3.16
	6	16 ,,	1	8 years.	None	,,	...	17/2.6.16
	7	18 ,,	2	4 mths.	13·4	,,	...	10/12.5.16
	8	18 ,,	?	9 ,,	26·5	1 in 125	None	9/21.1.16
	9	22 ,,	2	4 ,,	13·4	None	...	24/24.3.16
Not inoculated.	1	10 years	None.	None.	None	None	...	4/2.6.16
	2	10 ,,	,,	,,	,,	,,	...	5/19 5.16
	3	10 ,,	,,	,,	,,	1 in 50	None	25/9.6.16
	4	15 ,,	,,	,,	,,	None	...	10/23.6.16

Among the inoculated cases, in No. 1 (Ref No. 10/28.1.16) the serum was submitted twice for examination. On the first occasion it failed to agglutinate *B. typhosus*, but on the second it did so (8·9 agglutinin units per 1 c.c.). On neither occasion did it affect 7160. It was subsequently

ascertained that the man had had dysentery five months and typhoid fever four months previously. Unfortunately, the patient left Dublin before a sample of his serum could be obtained to test for paratyphoid agglutinins, but the case is being followed up and inquiries have been instituted as to the serological findings obtained during his illness.

Case 8 (Ref. No. 9/21.1.16). The serum was examined twice; on the first occasion it gave 26·5 agglutinin units for *B. typhosus* and agglutinated 7160 in 125 dilution. On the second occasion, one week later, it gave 14·2 typhoid agglutinins and agglutinated 7160 in 125 dilution. On inquiry it was stated that he had never at any time suffered from symptoms of food poisoning.

Among the non-inoculated cases No. 3 (Ref. No. 25/9.6.16) was examined on two subsequent occasions, once after a week, and a second time five weeks after the first examination; on both these occasions it failed to agglutinate 7160. An examination of the fæces proved negative for non-lactose fermenting bacilli.

IV. SUMMARY.

1. Out of the 270 sera of inoculated men examined 37·1 per cent. gave positive agglutination for *B. typhosus*. Of these, the greater number gave up to 25 standard agglutinin units per 1 c.c of serum; after this the percentage of units obtained dropped rapidly until the number of sera containing more than 125 agglutinin units formed but quite a small percentage of cases.

2. During the first month after inoculation the maximum number of agglutinin units is obtainable. This maximum falls rapidly during the third month after inoculation. Between the fifth and fourteenth month a fairly high agglutinin unit content may be met with, but after 15 months subsequent to inoculation the agglutinin units were not found above 100.

3. There is some evidence to show that after the highest point in the agglutination, following antityphoid inoculation, has been reached the subsequent fall is progressive, but is inclined to remain steady or even to rise slightly at intervals so as to form secondary waves on the downward course. This is more marked in the earlier months following inoculation than at the later months.

4. The sera of men inoculated twice give more positive reactions than men inoculated only once. Also a greater number of them give 25, 50, and 100 agglutinin units. Higher titres are obtained with the sera of men inoculated twice during the second, third, and fifth months after inoculation than among those who have been inoculated once.

5. The presence of syphilis (as indicated by a positive Wassermann) does not affect the agglutinating power of a serum for *B. typhosus*, though apparently it does appear to increase slightly its power to agglutinate 7160.

6. The agglutinating power of a serum for 7160 is not influenced by antityphoid inoculation.

7. Out of 366 sera, consisting of both inoculated and non-inoculated men who had either had or were suspected of having syphilis, 19·6 per cent. agglutinate *B. enteritidis* Gaertner (Delépine, 7160) when a 1 in 25 dilution is used. A much smaller percentage may agglutinate this bacillus up to a 1 in 250 dilution. None of these sera were found to affect 7160 in a higher dilution.

8. Out of 13 cases with a previous history of typhoid fever only 3 agglutinated 7160. These cases had had typhoid fever 8, 10, and 18 years respectively, previous to the date of examination. The 10 cases not agglutinating 7160 had histories of typhoid fever four months to 22 years previously.

9. Any of the sera clumping 7160 which were examined for co-agglutinins for *paratyphosus A* or *B* proved negative.

Bibliography.—1. Dawson, George D.: A Preliminary Account of a Research on the Diagnosis of Typhoid Fever in Inoculated Subjects, Brit. Med. Jour., June 24th, 1915. 2. Dreyer, Georges: Widal's Reaction with Sterilised Cultures, Journal of Pathology and Bacteriology, xiii., 1909. Also see THE LANCET, 1915, ii., 837; and Ainley Walker, E. W.: A Note on Widal's Reaction with Standardised Agglutinable Cultures, THE LANCET, 1916, i., 17. 3. Tidy, H. L.: Discussion on Paratyphoid Fever, Royal Society of Medicine, THE LANCET, 1915, ii., 1191. Also Tidy, H. L.: Influence of Febrile Conditions on Inoculation Agglutinins, THE LANCET, 1916, i., 241. 4. Dreyer, Georges, Ainley Walker, E. W., and Gibson, Alex. G.: Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation, THE LANCET, 1915, i., 324. 5. Dakeyne, D. J.: Observations on Some of the Agglutination Reactions of the Blood of Soldiers Inoculated against Typhoid Fever, THE LANCET, 1915, ii., 540. 6. Ritchie, T. R.: On the Agglutination Reaction of the Bacilli of the Typhoid-Dysentery Group with Normal Sera, THE LANCET, 1916, i., 1257.

CHRONIC GONORRHŒA CURED BY ELECTROLYSIS.

BY CHARLES RUSS, M.B. LOND., M.R.C.S.

(*From the Electrical Department of the Look Hospital, Dean-street, London, W.*)

CHRONIC gonorrhœa is an unfortunate state for any patient, and it also represents a clinical condition which often taxes the patience of the doctor in charge of the case as much as that of the sufferer. The condition is one which is the more exasperating, because after all there may be so little to get rid of, and yet it is (if the gonococcus be still present) material of such significant and potential virulence.

I think it is insufficiently realised that if treatment by injections, or bougies, or irrigation, or medicine, or combinations of these methods, have failed to cure a case of gonorrhœa after several months it is not only useless but actually harmful to continue them. How often does one find that irrigations continued for many months and having failed to cure have become changed from irrigations into irritations. Within the last year numerous patients have come under my care in whom these things had happened, and I think it well to indicate the lines on which I have attained success. Although the great majority have been cured, and I should prefer to know of any failures, I can only find record of one or two in which the result remains unknown because of the expiration of sick-leave and an unavoidable return to active service. The following are cases illustrating an advantageous change of treatment.

CASE 1.—The patient was sent to me with the following history. After a recent festivity he alleged a gradual onset of a discharge which was ascribed to another return of an old attack. As usual, I examined Gram-stained films of his copious discharge and found groups of gonococci in every field. He also admitted scalding and smarting, and in a consultation with his medical attendant, who was present, the history was withdrawn and a reinfection conceded six months before. Although his medical attendant had been misled the patient mentioned that he had from the outset the help of two specialists, who had irrigated and injected silver compounds into the deep urethra and inserted soluble bougies, and it was easy to believe his opinion that after six months he was little, if any, better. This patient had got it well on his nerves, and he had moderately severe rheumatism.

Treatment.—I began electrolysis of the anterior urethra every other day until 14 treatments had been given, and then proceeded to electrolyse the deep urethra and gave ten more administrations. The patient was absent on business for nine days after a month's treatment, and the case was finished after treatment spread over seven and a half weeks. Repeated microscopy showed the absence of pus, and the cure is assured by my continued touch with the patient up to one year after beginning his case.

The accessory treatment consisted in the use of santal oil, salol, and a few doses of vaccine. The last named seemed unable to suppress the rheumatism, which only disappeared with the absence of the gonococcal discharge.

I think that not the least important part of the cure in the above case was the immediate stoppage which I enforced of any injections or irrigations, even during the patient's enforced absence. The case illustrates the recuperative power of a previously irritated mucous membrane, which was gently relieved of its gonococci as described.

CASE 2.—This patient arrived from abroad on crutches with a history of acute gonorrhœa of ten weeks' standing. He had been thoroughly irrigated and developed a very swollen and inflamed knee full of fluid. This knee had been blistered freely and the patient was naturally full of anxiety. He had been given several doses of vaccine.

Treatment.—As usual I focussed my efforts on the discharge and did nothing at all to the knee. The irrigations were stopped and small doses of vaccine and a little santal oil were administered. After eight treatments the discharge was difficult to find, and I ordered the patient to begin walking, which was now not painful. Though the limb was wasted from disuse he soon walked easily, and after six weeks could do all bending exercises except supporting the whole body on the bad knee in the bent position (quite a strong test for healthy folk). In this case, however, the final clearance of pus and gonococci was unexpectedly prolonged, but after 28 treatments the patient recovered and took an army commission.

The interest, I think, of this case is the rapid resolution of the inflammation of the knee coincident with the overcoming of the discharge.

CASE 3.—The history in this case was as follows. Gonorrhœa had been contracted 11 months before, and had treatment by irrigations and injections, besides vaccine. The patient was pale and unable to walk on account of a painful, very hard and swollen epididymis of recent occurrence.

Treatment.—After seven electrolysis treatments as far as the compressor urethræ, the urine was almost clear, but microscopically it showed a trace of pus, although the testicle was nearly normal in size. I then electrolysed into the deep urethra and gave four deep urethral treatments, making 11 administrations in all during 41 days. The patient made a complete recovery, and on account of a visit in connexion with military service I was able to confirm his cure six months later. Besides the electric treatment he took a little santal oil and had five doses of gonococcus vaccine, and, of course, irrigations and injections were stopped from the outset.

CASE 4.—This patient had contracted gonorrhœa three months before and used injections of potassium permanganate. He was unable to arrest the discharge and he found its volume rapidly increasing after stopping the injection. Microscopic examination showed very numerous gonococci, and the patient's condition was the worse for an impaired nervous system after 11 months' artillery work in France without any leave.

Treatment.—Although much persuasion was required to enforce abstinence from the use of any injections or lavage, the patient was soon reassured by the cessation of all discharge after six electrolyses, two of which were within the deep urethra. He remained free from any symptoms for several months after stopping the treatment and had resumed the use of alcohol. This intelligent patient had also arrived at the unhappy stage of incessant scrutiny of his urine in the domestic tumbler. His recovery was associated with great benefit to his nervous system and general health.

In the foregoing cases both pus and gonococci were found by microscopic examination of the discharge, and that fact decided me to use electrolysis. The worst of the chronic cases, however, show no gonococci, and there is a predominance of epithelial cells and much less pus in the discharge. Such cases will take longer to cure, and often, I think, electrolysis should be avoided; at any rate, until other means have been tried. In these cases with epithelial peeling, as shown by the microscope, one finds various bacteria to be present—viz., staphylococci, colon or diphtheroid bacilli, and the procedure which I prefer is as follows. Prohibit the continued irritation of injected chemicals and the loss of more epithelium by the operations of lavage and allow no instrumentation whatsoever of the weakened urethral mucosa. An autogenous vaccine should be made from the bacteria present and used by weekly injections in gradually increasing strength. Besides this, small doses of a urinary antiseptic should be taken after meals and abstinence from alcohol enforced. The antiseptic may be urotropin, santal oil, or salol. I believe any attempt at diuresis is to be avoided, for one naturally tries to give the urethral passages as much rest as possible when showing signs of chronic irritation. In one chronic case of this type of five years' duration the patient's moderately copious discharge was composed almost entirely of urethral cells; and this was the worst case I have ever examined.

Another difficult class of chronic case is the man with urethral stricture and a discharge. If microscopy shows pus and gonococci the latter should be removed by electrolysis. In treating these cases, however, it is advisable to go very slowly and with only a small current. One troublesome liability is a spasmodic contraction upon the inserted catheter during the flow of the current and of which the patient is usually unaware. Attempted withdrawal shows its retention in what feels quite a firm hold. I have found its release to follow a rather strong reversal of the current for a few minutes, or the injection of stovaine 2 per cent. solution into the catheter will bring about its release.

Needless to say, stricture cases must be handled with nothing approaching force, for besides the pain which would occur the major damage of laceration and simultaneous bacterial inoculation of the inflamed (and sometimes ulcerated) area behind the stricture might occur, and constitutional disturbances result. Cases of acute gonorrhœa are, no doubt, cured by the routine methods in general use, and when this occurs all is well. When, however, no cure has been obtained the treatment needs to be radically altered before the patient's urethral vitality has become damaged by persistence in methods which are no longer able to produce progress.

I am convinced that the above illustrative cases prove that many of the failures can be cured if helped in quite a different way.

A CASE OF
A BULLET IN THE SPHENOIDAL SINUSES; REMOVAL THROUGH THE LEFT NOSTRIL.

BY H. ELWIN HARRIS, F.R.C.S. ENG.,

CAPTAIN, R.A.M.C. (T.); SURGEON, BEAUFORT WAR HOSPITAL, BRISTOL.

ALL who are engaged in war surgery must be impressed by the many unexpected and diverse paths taken by bullets to reach their ultimate resting places. The following case is in many respects so unique that I think it worth recording.

A soldier, aged 22, in an infantry regiment, whilst on active service in Suvla Bay was wounded over the left hip. The surgeon was commencing to dress his wound when the patient was struck a second time by a bullet, which for a short time rendered him unconscious. After regaining consciousness blood was found trickling down the side of his nose from the left inner canthus. He was invalided home and sent to the Beaufort War Hospital. On examination at the hospital no wound or scar was found either on the face or in connexion with the eye or on the scalp. There were swelling and paralysis of the eyelids and optic atrophy on the left side (Major Walker). A skiagram of the skull revealed the presence of a bullet lying transversely and obliquely below the sella turcica; its base was seen in the left sphenoidal sinus and the body passed obliquely downwards and forwards through the septum between the sinuses, its "nose" resting in the roof of the right nasal cavity. (See Skiagrams 1 and 2.) There can be no doubt that the bullet entered at the left inner canthus, that it passed along between the eyeball and the inner wall of the orbit, until it reached the apex of that cavity. Here turning downwards, inwards, and forwards, it described an angle of more than 180°, entered the sphenoidal sinus, wounding in its course the third and optic nerves.

FIG. 1.

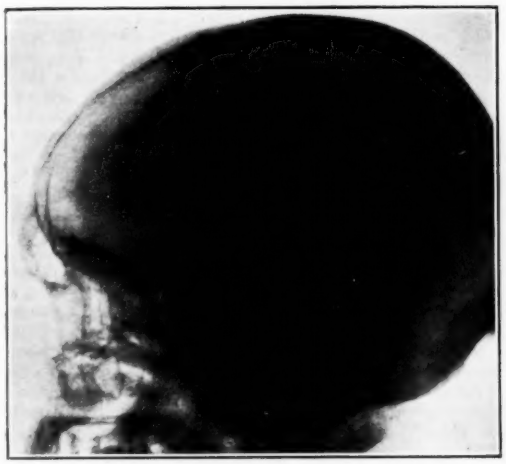
Skiagram taken antero-posteriorly.

Having discovered this foreign body the question arose, Should it be allowed to remain or would it be in the interest of the patient to remove it? Major Walker, ophthalmic surgeon to the hospital, was of opinion that the optic atrophy had so far advanced that removal, as far as any improvement in vision was concerned, would be of no benefit. On the other hand, in my opinion, to leave a foreign body of such magnitude in the sphenoidal sinuses and to expose the patient to the risk of a very probable suppurative sinusitis was not in his best interests. Eventually I explained fully to the patient the danger of allowing it to remain, emphasising at the same time that its removal could not be effected without appreciable risk, and I left it to him to decide. There was no hesitation on his part; he was willing to submit to anything if only the bullet could be got at.

As the skiagram showed that the greater part of the bullet was lying on the left of the middle line, and the left nostril being more roomy than the right, I decided to proceed from that side. At different stages the anterior half of the inferior and most of the middle turbinals were removed. On the next occasion I broke through the anterior wall of the

sphenoidal sinus with a Watson Williams trocar (a skiagram was taken showing the trocar passing over the bullet in, and its tip resting against the roof of the sinus). An attempt was then made to introduce cutting forceps with a view to enlarge the opening in the anterior wall. It was at this stage that I met with difficulty and delay. Neither then nor at any of the attempts I subsequently made was I able to introduce any instrument of this kind. Whether this was due to the position of the bullet or to faulty technique on my part, I am unable to say, but it became evident that if the foreign body was to be removed some other method

FIG. 2.



Skiagram taken transversely.

than that usually adopted must be tried. After mature deliberation I decided to make a final attempt with the patient under a general anæsthetic and upon the X ray table. This I did on June 30th last. The patient having been anæsthetised, the lights were turned out, and in all the stages of the operation one was entirely guided by the image on the X ray screen. The trocar was first passed up the left nostril into the sinus, showing that the opening previously made in the anterior wall was patent. This being withdrawn, a Watson Williams "rasp" was introduced and slipped over the bullet with its cutting surface downwards. Turning it so that this surface pointed to the middle line, and keeping the side of the instrument in contact with the upper surface of the bullet, I rasped away the bone, cutting through the septum between the sinuses, and, as far as one could judge, almost to the tip of the bullet. The next step was to remove the remaining portion of the anterior wall. I again tried to introduce cutting forceps, but failed. Taking a hammer and a narrow rounded chisel, from the cutting edge of which I had previously measured 3¼ inches, I passed the latter up to the bone, and by a series of regulated strokes I broke down all that was in front of the bullet. Having done as much of this as appeared necessary, the chisel was withdrawn and a blunt hook was passed on the flat through the opening above the foreign body, until it reached the roof of the sinus. It was then turned downwards, and the hook was felt to embrace the bullet. After gently sliding it along until it was seen to be quite near the base, gentle traction was made. At first there was no response, the base of the bullet appearing to be fixed against the outer wall, but after persevering for a short time, it yielded, and was turned down into the nasal cavity; there it was seized with forceps and pulled down to the floor of the nose and was subsequently recovered. The man made an excellent recovery; on the third day after the operation he was up assisting in the ward.

My thanks are due to Mr. Smallcombe, skiagraphist to the hospital, for the skiagrams and also for the most valuable assistance his experienced eye rendered me at the operation in localising the relative positions of the bullet, instruments, and adjacent parts.

Bristol.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

RETAINED PLACENTA IN A RUDIMENTARY HORN OF THE UTERUS.

BY M. C. S. LAWRANCE, M.B., CH.B.VICT., &c.

THE patient was a primipara, aged 24, and had a very hard labour. The presentation was a vertex one in the right occipito-posterior position. I had to rotate manually and apply forceps. After waiting 40 minutes for the placenta after the birth of the child, and as no sign of it was forthcoming I tried to express it manually by compression and failed. I then introduced my hand into the uterus and found the placenta in a rudimentary horn; the shape of the uterus abdominally was peculiar and led me to expect an abnormality. The placenta was adherent all round and could not be peeled off, but had to be removed piecemeal. Two days later the patient passed a piece of placenta about the size of a watch, but as there was no preceding hæmorrhage I concluded it had been detached before and had been lying loose in the uterus or vagina. The patient made an absolutely uneventful recovery.

Earlestown, Lancs.

A CASE OF CONGENITAL ABSENCE OF NAILS.

BY BERNARD O'NEILL, B.A. CANTAB., M.R.C.S., L.R.C.P. LOND.

A WOMAN, aged 26, came to me in July of this year as a patient suffering from dental caries and anæmia. She was of frail appearance and pale and weighed only 6 st. 10 lb.

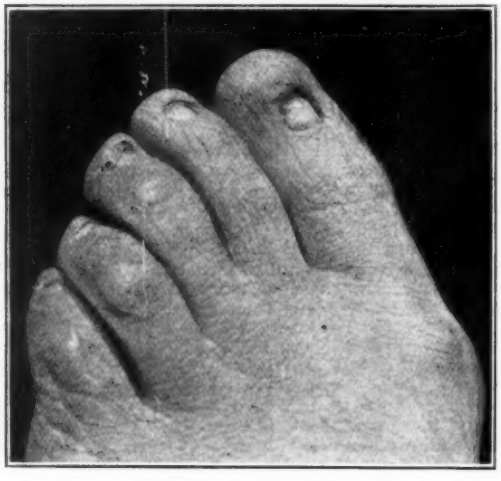
FIG. 1.

Right hand, showing absence of finger-nails.

She had no nails at all on the thumbs or fingers or great toes and only tiny fragments of nails on some of the other toes. The nail-beds were present on all the digits of the hands and feet, and the fragments of nails found on some of the toes were placed round the edges of the nail-beds or on the nail-beds themselves. The thumbs, fingers, and great toes had a hooded appearance at the extremities. In the fingers and thumbs the nail-bed had an upper paler part and a lower shining and more vascular part, the latter corresponding to

the lunette in the nail of a normal digit. The patient told me that her only other relatives with this peculiarity were two younger sisters, aged 25 and 6 years respectively.

FIG. 2.



Left foot, showing absence of toe-nails.

The following table of the family of brother and sisters is interesting, as showing in what order the abnormality occurs:—

	Age.		
Brother	28	.....	With nails.
Sister	26	(my patient)	Without nails.
,, ...	25	.....	,,
,, ...	21	.....	With nails. ,,
,, ...	19	.....	,, ,,
,, ...	6	.....	Without nails.

The patient told me that her mother had the operation of evulsion performed upon the nail of one of her great toes during the time when she was carrying the subject of this note.

Chiswick, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

(Esophagectasia.—Acquired Syphilis of the Lungs.

A MEETING of this section was held on Nov. 28th, Dr. F. PARKES WEBER being in the chair.

Dr. H. BATTY SHAW and Dr. A. W. WOO communicated a paper on six cases of (Esophagectasia, which was published in full in our issue of Dec. 2 ·d.

Professor S. G. SHATTOCK said that, like idiopathic dilatation of other organs such as the bladder and colon, the condition had a pathogenesis of its own, but one which was not known. It was not due to vagal paralysis, for then the dilatation would be gradual and accompanied by gradual atrophy. Chronic spasm of the cardiac sphincter was not the cause, for if it were there would be local overgrowth of the muscular wall at the cardia, which did not occur. Kinks could not explain the origin of all cases, as specimens showed, for if they had been in existence for any length of time there would be permanent deviation from the normal position, which was not the case. The view held by Dr. Weber that there was a blocking of stimuli analogous to heart-block did not apply to the case of the œsophagus, for removal of lengths of œsophagus did not prevent conduction. His own belief was that there was a want of coördination between the propulsive action of the œsophagus and the relaxation of the sphincter. The peccant spot was probably the mucosa, which was hypoæsthetic, and the defect might be confined to the area of the cardia. The sphincter failed to relax and the œsophagus to empty just as the vesical sphincter remained shut and the bladder failed to empty if its mucosa were cocainised. He suggested as treatment removal of the lowest inch or so of the œsophagus.

Dr. A. F. HURST agreed that the condition was probably not very rare, for he had met with seven cases. He disliked the term "œsophagectasia," since at the earliest stage of the malady the œsophagus was not dilated. Like the hypertrophy of the walls and the ulceration, the dilatation was a secondary development. He held that the normal activity of every hollow organ consisted in the passage of a peristaltic wave along it and the relaxation of the circular muscle at its distal aperture. This had been demonstrated on animals and could be seen by X rays. The relaxation occurred in the alimentary canal in three areas—at the end of the œsophagus, at the pylorus, and at the ileo-cæcal valve. In the condition under discussion, so-called "cardio-spasm," there was a failure of relaxation of the cardiac sphincter, and it was more accurately designated by the term "achalasia" which he had applied to it. There was no spasm, for if a mercury tube were passed it was not gripped. By some a spasm of the diaphragm had been suggested as a cause, but there was no record of any local hypertrophy of the diaphragm, no grip, and X rays showed that the diaphragmatic ring was not the site of the obstruction. Reflex causes might produce this upsetting of the normal mechanism, as was exemplified by inflamed conditions of the appendix, which lead to failure of relaxation of the ileo-cæcal sphincter. Some cases were probably purely nervous in origin. Waterbrash, a condition in which a quantity of neutral fluid was brought up, illustrated his contention. In that affection excessive acidity of the gastric contents led to achalasia, and the saliva which poured out was swallowed and retained in the œsophagus, from which it was subsequently ejected.

Dr. WOO said that early diagnosis was of prime importance, for in early and slight cases careful dietary was quite effective. In the severest cases no doubt operation was needed. In cases of some standing unrelieved by dieting he said that stretching of the cardia by means of distensible bags, covered by silk to limit their expansibility, had proved very successful.

Mr. HERBERT TILLEY said that his experience favoured the existence of spasm in the position of the orifice in the diaphragm. When a tube was passed down the œsophagus under œsophagoscopy it could be felt to impinge against a resisting area; this then relaxed and the tube passed through. If the same procedure were repeated under a general anæsthetic the tube was passed without encountering this resistance. He urged that an œsophagoscope ought to be passed in all cases of obstruction in the œsophagus with very few exceptions, such as aneurysm. For treatment he recommended the passing of a mechanical divulser and dilatation by its means once a week for five or six weeks. By this means many cases could be cured.

Dr. C. R. BOX showed a radiogram as a commentary of what might happen when a patient was entrusted to pass his own mercurial tube. Though the patient believed that he was getting better by passing it, the radiogram showed that the tube did not enter the stomach, but lay curled up in the œsophagus.

Dr. PARKES WEBER read a paper on Acquired Syphilis of the Lungs. After describing six cases of chronic non-tuberculous disease of the lung, three of which he regarded as syphilitic and three as probably of the same nature, Dr. Weber said that while he was physician to the Mount Vernon Hospital for Diseases of the Chest he practically never saw a case which he could regard as one of pulmonary syphilis, but recently he had met with several in which he believed that that diagnosis could be made with more or less probability. In one of these, that of a man, the nature of the lesion had been suggested by a patch of syphilitic leucoderma on the neck, an eruption very rare in men. Many writers on the subject had had the opportunity of making post-mortem examinations. The chief pathologico-anatomical features were: (1) gummatous formation, with a tendency to necrotic changes; and (2) more chronic, and often widely-spread, fibrotic changes, tending to become associated with bronchiectatic dilatations. In the cases now described he thought the changes were chiefly of the fibrotic order, though gummatous formation might also have occurred, especially in two of them. According

to T. Tanaka,[1] the histology of the pulmonary indurative changes of acquired syphilis was very similar to that of the so-called "white pneumonia" of congenital syphilis. The most characteristic features were much endarteritis obliterans, together with peri-arteritis and endo-phlebitis. Mesarteritis also occurred, and in three cases Tanaka found a noteworthy increase of the unstriped muscle tissue, which he regarded as derived from the walls of the small bronchi, and which had till then never been described as connected with pulmonary syphilis. In regard to clinical diagnosis the question of there being an aortic aneurysm or mediastinal new growth might arise, especially if the left recurrent laryngeal nerve were paralysed. But the clinical differentiation from tuberculosis was the chief difficulty, for in tertiary syphilitic diseases of the lungs there might be pyrexia, the so-called "tertiary syphilitic fever," such as not very rarely occurred in tertiary syphilitic disease of the liver, or a complicating fever, due to associated bronchitic and bronchiectatic changes with purulent discharge. Moreover, there might also be (though less in frequency and degree than in tuberculosis) night sweats, emaciation, hæmoptysis, and copious nummular muco-purulent sputum. (In some cases of hæmoptysis many spirochætes had, he believed, been found in the sputum, though doubtless not the *Spirochæta pallida* of syphilis.) In pulmonary syphilis, however, the lower parts of the lungs were generally chiefly involved, and the absence of tubercle bacilli in the sputum on frequently repeated examinations, together with a history of past syphilis, evidence of tertiary syphilitic lesions elsewhere, and a positive Wassermann reaction ought to turn one's attention in the right direction. In regard to pulmonary syphilis, one had to bear in mind the possible coexistence of syphilitic ulcers or stenoses in the bronchial tubes, trachea, or larynx. Stengel (1903) pointed out that one of the most suspicious symptoms was intense dyspnœa of more or less spasmodic type, with a tendency to stridor and cyanosis, all of these being indicative of obstruction in the larger air-passages. In some cases the respiratory symptoms were altogether much more severe than the ordinary physical signs in the lungs would lead one to suppose. There might also be recurrent severe spasmodic attacks of coughing, accompanied by more or less copious muco-purulent expectoration. In some cases pleurisy and pleuritic effusion might be associated with pulmonary (gummatous) syphilis, as they probably were in one of his cases. The therapeutic test was always of extreme importance, especially when the patient was found to derive obvious benefit from the use of potassium iodide, a drug which sometimes aggravated the symptoms in pulmonary tuberculosis. Old cicatricial stenoses of the respiratory passages could not, of course, be removed by antisyphilitic treatment. It must always be remembered that pulmonary tuberculosis was not at all rare in syphilitic subjects, and, *vice versa*, that tuberculous patients not very rarely acquired syphilis. He did not think that the two diseases had much effect, either good or bad, one on the course of the other, unless one or both of them had been sufficiently severe to produce a condition of cachexia and to lower the resistance of the body towards disease. Pulmonary tuberculosis, as far as he could judge, was uninfluenced by the presence of an old quiescent syphilitic taint. Though by some an antagonism between the two diseases had been supposed to exist, it was more probable that syphilis predisposed to tuberculosis, in so far as it lowered the vitality of the organism; and it was not unlikely that syphilitic tissues, as had been maintained,[2] constituted a specially favourable soil for the growth and multiplication within the body of tubercle bacilli. When the tuberculosis was active and the syphilis quiescent or obsolete the former naturally dominated the whole clinical aspect and the prognosis, and the effect of energetic anti-syphilitic treatment by mercury and potassium iodide was not unlikely to be a bad one. Though salvarsan and neo-salvarsan in moderate doses seemed to do no harm in ordinary cases of pulmonary tuberculosis, yet, as far as he knew, they did no good.

[1] T. Tanaka: Beitrag zur Kenntnis der Lungensyphilis beim Erwachsenen, zugleich über sogenannte muskuläre Lungencirrhose, Virchow's Archiv, Berlin, 1912, ccviii., 429.

[2] Cf. R. W. Taylor, Bone Syphilis, Hereditary and Acquired, New York Medical Journal, 1907, lxxxv. 7. Cf. also, on the whole subject, Emile Sergent, Syphilis et Tuberculose, Paris, 1907. Gouzet also (Journal des Praticiens, Paris, 1910, xxiv., 771) maintains that while tuberculosis does not predispose to syphilis, the latter certainly does to tuberculosis.

Reviews and Notices of Books.

1. *The Statutes, Regulations, and Orders relating to National Health Insurance.*
With Notes, Cross-references, and an Index. 1916. Published by Authority. London: Wyman and Sons. Edinburgh: H.M. Stationery Office, Scottish Branch. Dublin: E. Ponsonby, Limited. Colonies and Foreign Countries: T. Fisher Unwin, Limited. Pp. 691. Price 2*s.* 6*d.*

2. *The Panel Doctor: His Duties and Perplexities.*
By T. M. TIBBETTS, M.D. Lond., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H., Member of the Staffordshire Insurance and Panel Committees. 1916. Birmingham: Cornish Brothers. Pp. 68. Price 1*s.* 6*d.* net.

1. DURING the last twelve months the various and numerous regulations and amending regulations governing the administration of National Insurance have been grouped and consolidated into codes, each dealing with a single subject, such as "The Collection of Contributions," "The Navy and Army," or "Married Women." An exception to this consolidation and codification has been made in the case of the regulations relating to medical benefit, which have been left untouched owing to the difficulties created by the war. All the regulations and the orders bearing on them have now been collected in the volume before us for the use of those administering the Acts, and the result is a book which is not over-bulky and which will probably be consulted by all concerned. As a matter of fact, it contains rather more than orders and regulations, as it includes the text of the two Insurance Acts with sections of other statutes affecting national insurance. A table shows the powers to make regulations and orders given by the Acts and states the regulations and orders which have been made. A third division of the work consists of the regulations and orders made by the joint committee and the four bodies of commissioners. These are set out in full, but care has been taken to avoid the repetition which would be made by reprinting regulations which are practically the same, although made by different bodies of commissioners, one set only being printed in such cases, variations, if any, being shown by footnotes. An official or other person interested, when once he has become familiar with it, should find this official statement and tabulation of the law convenient and an aid in the performance of his duties. Apparently it was intended originally to issue it at 6*s.*, a price which has been printed on the cover, but which has been wisely altered to a modest half-a-crown, for re-issues are likely to recur from time to time in order to include fresh regulations and orders.

2. Dr. Tibbetts, wanting information upon some questions arising in his panel practice, which were not definitely answered in official literature or medical journals, set to work to write a short treatise on the subject for the benefit of others. That legal and medical writers had neglected the Insurance Acts as a subject for their industry we should hardly have ventured to suggest, but it can assuredly be said that in the little work before us the author has supplied a want which many must have felt. In it he gives us a sketch portrait of National Insurance in the working from the point of view of a member of a panel thoroughly conversant with the essential features of his subject. By this we do not mean that details are disregarded, but rather that the gist is given and that the reader is spared the citation of sections and regulations. Those who want to know about a medical man's insurance work are not necessarily medical men themselves, but those in or about to enter upon panel practice are the most concerned, and any of these can read what Dr. Tibbetts has to say in an evening, and then put it away for future reference when needed. Such a course may particularly be recommended to critics who are prone to express pessimistic or hostile opinions upon the subject of National Insurance. The author treats the duties and perplexities of the panel doctor with a certain breezy cheerfulness and plain, good sense, never forgetting the duties and obligations of the medical man towards his profession, but at the same time not allowing his reader to forget that there are duties which the medical man owes to the State when he contracts to work for it under laws and rules framed for his guidance. His observations upon the necessity

for strict accuracy in certification, coupled with his recommendation of the usefulness of "other remarks" where these are invited, are good examples of his tolerant attitude and of practical advice which may safely be followed by all concerned.

The Art of Anæsthesia.

By P. J. FLAGG, M.D. With 136 illustrations. London and Philadelphia: J. B. Lippincott Company. 1916. Pp. 341. Price 15*s.* net.

THIS book is good evidence of the attention and ingenuity that are being expended upon anæsthesia and all that pertains thereto by our American colleagues. In his account of the history of the subject the author breaks no new ground, but he has the originality to introduce pictures of Homer, Du Bartas, and Shakespeare, personalities whom one does not somehow expect to meet on turning over the leaves of a treatise on anæsthetics Dr. Flagg is original also in his description of general anæsthesia as being of two classes, complete and incomplete. The complete he divides into stages of induction, maintenance, and recovery; the incomplete has no stage of maintenance. The author gives an excellent account of the causation of rigidity in the course of anæsthesia and of the correct treatment for its abolition. He has much to say with regard to carbon dioxide and rebreathing—in fact, this occupies a separate chapter—and points out that cyanosis may have nothing to do with the presence or absence of CO_2, being entirely dependent upon the oxygen content of the blood. Nitrous oxide and oxygen together with ether, given by a rebreathing system, appear to form the author's favourite method of anæsthesia. With this he gives preliminary injections of morphine and atropine, but disapproves of the morphine before using open ether. With regard to chloroform he states that "in the light of present-day pathology chloroform should cease to be used as an anæsthetic in obstetrics." To replace the light chloroform narcosis usually employed in these cases by prolonged nitrous oxide, with its necessity for expert and apparatus, is at present, however, not within the bounds of practical politics. Although there is, perhaps, an excessive amount of space devoted to the machinery of anæsthetics, this book treats the whole subject in an enlightened spirit and deserves careful reading by every student of anæsthesia.

A Handbook of Colloid-Chemistry.

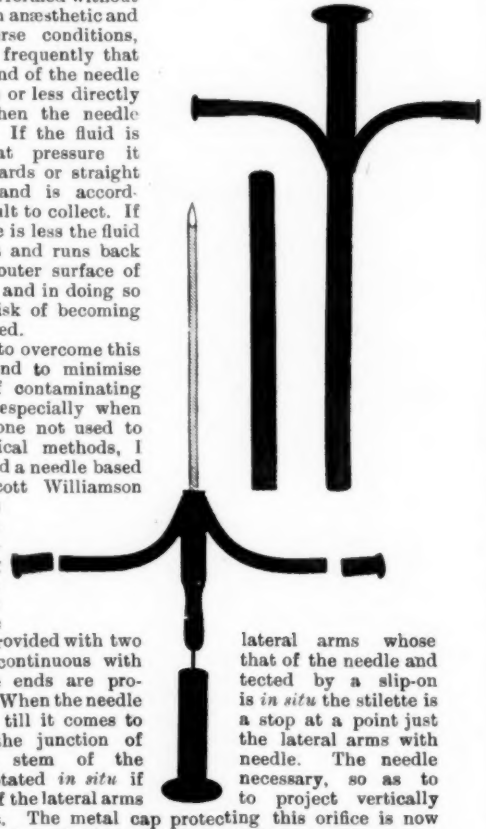
By Dr. WOLFGANG OSTWALD. First English edition. Translated from the third German edition by Dr. MARTIN H. FISCHER (Cincinnati), with the assistance of RALPH E. OESPER, Ph.D., and LOUIS BERMAN, M.D. London: J. and A. Churchill. Pp. 278. Price 12*s.* 6*d.* net.

WELL may the chief translator write: "The day is past when the importance of colloid-chemistry to the worker in the abstract or applied branches of science needs emphasis." And, as he points out, not only inorganic research but the organic also has chosen the colloid realm in which to manifest itself; living matter, whether of plants or animals, and under normal or pathological conditions is chemistry in a colloid matrix, and so colloid-chemistry comes to concern every botanist and zoologist, the physiologist, and the practical man in medicine and surgery. Dr. Wolfgang Ostwald is a well-known authority on the subject, and he has carried out original investigations of the greatest significance and importance. About seven years ago the original German edition was issued, but it has never been translated into English, although it ran through three German editions. We have, of course, our own literature on the subject, but nothing perhaps so complete or classic as the volume before us, and yet the whole fabric of colloidal chemistry had its foundations well and truly laid by Thomas Graham as far back as 1861. There is a noble acknowledgment of the pioneer work in this book, and it was a happy conception to begin the new treatise on colloid-chemistry with a good portrait of Thomas Graham as frontispiece. The references to literature are very copious, and form a valuable feature of the work. Apart from physiological questions, we shall hear, if we mistake not, much more of the application of colloid-chemistry to therapeutic practice in the near future. This translation into English of a standard German handbook will therefore be welcomed, and the translator and his assistants will earn the thanks of many investigators.

New Inventions.

AN IMPROVED TYPE OF NEEDLE FOR LUMBAR PUNCTURE.

NEEDLES in common use for lumbar puncture are generally so constructed that the fluid emerges from an opening which has undergone considerable handling during the process of insertion of the needle and the sterility of which cannot be guaranteed. In order to obviate this risk Dr. G. Scott Williamson devised a needle whose stilette was attached to a metal cap. This latter fitted over the outer end of the instrument, and so protected the opening from contamination during manipulation of the needle into the spinal canal. Where the patient can be anæsthetised and placed in a suitable position this type of needle answers quite well. Where, however, lumbar puncture has to be performed without the aid of an anæsthetic and under adverse conditions, it happens frequently that the outer end of the needle points more or less directly upwards when the needle is *in situ*. If the fluid is under great pressure it spurts upwards or straight outwards, and is accordingly difficult to collect. If the pressure is less the fluid trickles out and runs back along the outer surface of the needle, and in doing so runs the risk of becoming contaminated.



In order to overcome this difficulty and to minimise the risk of contaminating the fluid, especially when drawn by one not used to bacteriological methods, I have devised a needle based on the Scott Williamson type. As is shown in the accompanying illustration (drawn to ½ scale) the needle is provided with two lateral arms whose lumen is continuous with that of the needle and whose free ends are protected by a slip-on metal cap. When the needle is *in situ* the stilette is withdrawn till it comes to a stop at a point just distal to the junction of the lateral arms with the main stem of the needle. The needle may be rotated *in situ* if necessary, so as to allow one of the lateral arms to project vertically downwards. The metal cap protecting this orifice is now removed, and the fluid is easily collected in a sterile tube or bottle with the minimum risk of contamination. When it is desired to introduce serum the metal cap can be removed from the upper arm and the rubber tube leading from the serum cannula slipped on in its place, or if it is desired to record the intrathecal pressure the upper lateral arm may be adapted for manometer purposes. Not only are the openings in the lateral arms protected from contamination, but the needle itself is protected when not in use by a screw-on metal cap, so that the whole instrument can be carried about ready sterilised. The needle is of good calibre, and is sufficiently strong to reduce the risk of breakage *in situ* to a minimum in cases where the patient is restive, while the lateral arms offer an excellent leverage in introducing or withdrawing the needle.

The needle has been made for me by Messrs. Mayer and Meltzer, London.

Reading. ROBERT DONALDSON.

THE LANCET.

LONDON: SATURDAY, DECEMBER 9, 1916.

The Committee of Reference of the English Royal Colleges and the Problem of the Disabled Soldier.

THE Committee of Reference of the English Royal Colleges, a statutory body under an Order in Council, and appointed to advise the War Office through the Central Medical War Committee, have reported in clear terms upon the problem of the dischargeable disabled soldier. The Committee have worked in association with the Central Medical War Committee, and the two bodies have acquired definite information that a large number of disabled soldiers have already been discharged from the Army as being unfit for further military service; their case will be made the subject of a further report, which is already drafted. As the number of men thus "broken" will amount to many thousands before the war is over, the Committee urge that continued medical and surgical treatment should be organised for them at once, as success must depend on its being prompt. It is the especial function of the Committee of Reference to safeguard the interests of the civil community by ascertaining that civilian hospital staffs remain during the war adequate to provide medical and surgical treatment. If the disabled soldiers are discharged from military hospitals while requiring further treatment to render them useful members of the community, they will fall back upon the already depleted civilian hospitals, and a vast body of brave men, damaged while in the Army, may fail to obtain proper chances for return to civil life as useful citizens, capable in more or less degree of maintaining their independence. If such a position should arise for lack of forethought and effective machinery it would be a lasting reproach to all of us.

The Committee of Reference have confronted the situation squarely and agreed upon certain general principles. They hold that a considerable proportion of the disabled soldiers require continued institutional treatment, and that an essential condition of success in any scheme for such treatment is that the patient be thoroughly under discipline. As no form of discipline can adequately replace military discipline, they state that the disabled soldiers should not be discharged from the Army until a specially constituted board of medical experts has decided that no further institutional treatment will improve their condition, but they allow that such treatment cannot be extended beyond some maximum limit of time to be determined by the military authorities. These principles, or conclusions, have been arrived at by consideration of the probable number of men concerned, the classes under which their cases would fall, and the possibility of any substitute for military discipline which would secure with certainty the continued treatment. The terms of the report of the Committee of Reference are so clear and so far-reaching that it must necessarily move the military authorities either to undertake the task of the continued treatment of the disabled soldier or to render every assistance to some alternative scheme, such as the setting up of convalescent camps, similar to military convalescent camps. But the number of these would have to be extended as occasion required, for no data are at present forthcoming as to the number of men already discharged who would be benefited by continued treatment, while the uncertain duration of the war makes speculation as to the ultimate figures valueless. The Memorandum attached to the report considers the problem under two heads, premising that the wounded men are allowed to remain in the Army for some period. The first of these heads, the provision of institutional treatment for those who can only be satisfactorily treated in this way, is discussed at greater length; the second, the provision of temporary supervision for those who can be treated at home, is dealt with by the obvious statement that this will have to be left to local activities, assisted by the advice of local practitioners. A classification is then made of medical and surgical cases which should be treated in institutions, with subsequent transference to homes where attention can be given until the maximum benefit has been obtained; and the Committee suggest that the centres for the convalescent patients should take the form of annexes to the existing military convalescent camps. In regard to cases of neurasthenia and shell shock, other than mental cases, they point out that special treatment under military control may be required, but that it should not be given in camps specialised for the purpose, such patients deriving benefit from distribution among others. Mental cases the Committee consider require institutional treatment under the care of specialists, while tuberculosis cases present the difficulty that in one group the pathological manifestations may be due to the recurrence of definite disease present before enlisting, while in another group the disease may have been acquired on active service. The Committee hold that no soldier suffering from tuberculosis should be discharged from the Army, but that all these men should be treated under military discipline until the best possible has been done, with the admission that in prolonged cases the military authorities would have to prescribe some time limit for their responsibilities.

The conclusions of the Committee of Reference, therefore, are that dischargeable disabled soldiers should be kept in the Army until they have gained all the good that can be expected from institutional treatment administered over some maximum period; that they should be retained, in great majority, in military hospitals until they are fit to be discharged to convalescent camps; that annexes to these camps

should be set up where the cases could be treated by the officers of the Royal Army Medical Corps with civilian help. They consider that in the convalescent camps the treatment should be as far as possible the same as that of soldiers who are expected to return to active duty, save that technical and mechanical treatment should take the place of military exercises, while they think that special boards should be set up to supervise not only general cases, but ophthalmic, neurasthenic, epileptic, and mental ones. The Memorandum deals only with the treatment of soldiers who have not as yet been discharged from the Army; the case of the numerous soldiers already discharged and disabled is being dealt with separately. The Committee state clearly that they cannot contemplate that the military authorities will refuse to undertake the task of the treatment of disabled soldiers, and point out the objections to the only alternative way of meeting the situation—namely, the setting up of a number of new camps similar to the military convalescent camps.

The Metropolitan Water-Supply and the War: Chlorination Adopted.

Two valuable and interesting documents were issued last week by the Metropolitan Water Board. One is the Tenth Annual Report on "The Results of the Chemical and Bacteriological Examination of the London Waters for the Twelve Months ended 31st March, 1916," by Dr. A. C. HOUSTON, Director of Water Examination, Metropolitan Water Board, and the other is "The Twelfth Report on Research Work," by the same author. Both reports refer to the influence of the war on metropolitan water administration. To begin with, Dr. HOUSTON introduces his tenth annual report by remarking that the results of the examination of the London waters over so considerable a period would in ordinary circumstances have called for a long and detailed report. Under existing conditions, however, he has thought it desirable to place only the chief facts on record in a series of tables, which are, of course, available for future reference. This plan has resulted in the curtailment of the number of pages from 61 (last year) to about 40 this year. The war has brought on the staff the inconveniences of many changes, but the work of conducting the examinations has not been allowed to suffer. Dr. HOUSTON acknowledges this to be due to the loyal efforts of the remaining nucleus of his original staff and to the adaptability shown by those who are acting as temporary substitutes. This at a time when the maintenance of the purity of the London water-supply is more important than ever is very satisfactory, for one effect of the war may be to render water-supplies exposed to pollution more dangerous than previously, owing to the increased number of disease "carriers." During the current year the general quality of the water-supply has not deteriorated, although the extra pressure of work thrown on the engineering department, consequent upon the war, has been serious, and there has been trouble with algal growths.

A very important announcement is made in the Twelfth Report on Research Work. Certain events of a serious nature, writes Dr. HOUSTON, arose in connexion with the Water Board's supply of coal. Owing to the war, the price of coal advanced not only to an unprecedented extent, but it became imperative, in the national interest, to reduce its consumption to the lowest practicable limit. Now the raw river water is circulated through storage reservoirs in order to improve its quality by sedimentation, but the continuous pumping of 70 to 80 million gallons daily of raw Thames water into the reservoirs involves the expenditure of a very large sum of money on coal. An alternative and much cheaper plan is to leave the reservoirs full and to pass the river water direct on to the filter-beds after it has undergone a process of treatment which has proved to purify the raw water to a higher standard than is reached in stored water. This treatment consists in adding a definite quantity of chloride of lime (bleaching powder) to the raw water. The result has been to produce a water of as great or greater bacteriological purity than that of water stored in the Staines reservoir, and during the summer months 75 million gallons per day were so treated. As regards cost, less labour is required for chlorination than for pumping. With a dose of 0·5 part of available chlorine per 1,000,000 parts of water (or 15 lb. of chloride of lime of 33 per cent. strength per 1,000,000 gallons) the war cost of the material is calculated at about 3*s*. The war cost of coal to pump 1,000,000 gallons would be about 13*s*., so that the saving per day on, say, 75 million gallons of water would be £262 10*s*. per week. Dr. HOUSTON regards these results as most gratifying, but, as he points out, the season of the year must be borne in mind, and similar results can hardly be expected during the winter months, when the river water becomes heavily charged with suspended matter. That the London water has received chemical treatment will surprise many public health authorities, and it is doubtful whether the plan would have been adopted if it had not been for the circumstances of the war. But Dr. HOUSTON shows that a large sum of money has been saved without detriment to health; and, in the second place, the national interests have been served by reducing largely the consumption of coal. Some such treatment on a practical scale was anticipated, for this was indicated by the researches on raw Thames water which have been carried out for some time in the laboratories of the Metropolitan Water Board.

CENTENARIANS.—The death has recently been announced at Norwich of Miss Nancy Baillie, at the age of 102. Her father was first-cousin to Dr. Matthew Baillie (physician to Queen Caroline) and to Joanna Baillie, the dramatist and poet. The mother of the physician and the author was sister of John and William Hunter. It is interesting to note that though the birth of Joanna Baillie was premature, she lived for 88 years, while her sister died at the age of 100.—The death is also announced of Mary Anne Vyse, at Enfield Workhouse Infirmary, on Nov. 29th aged 104.

Annotations.

"Ne quid nimis."

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH.

THE Government have decided to establish a separate Department of Scientific and Industrial Research for Great Britain and Ireland under the Lord President of the Council, with the President of the Board of Education as Vice-President. They have also decided, subject to the consent of Parliament, to place a large sum of money at the disposal of the new department to be used as a fund for the conduct of research for the benefit of the national industries on a coöperative basis. The Board of Inland Revenue have decided, with the approval of the Chancellor of the Exchequer, that no objection shall be offered by their surveyors of taxes to the allowance, as a working expense for income-tax purposes, of contributions by traders to industrial associations which may be formed for the sole purpose of scientific research for the benefit of the various trades; and the allowance would be equally applicable as regards traders' contributions specifically ear-marked to the sole purpose of the research section of an adapted existing association. In both cases the allowance would be subject to certain conditions—e.g., the association or the research section to be under Government supervision and the traders' contribution to be an out-and-out payment, made from his trade profits and giving him no proprietary interest in the property of the association.

In order to enable the department to hold the new fund and any other money or property for research purposes, a Royal Charter has been granted to the official members of the Committee of the Privy Council for Scientific and Industrial Research, under the title of the "Imperial Trust for the Encouragement of Scientific and Industrial Research." The Trust is empowered "to accept, hold, and dispose of money or other personal property in furtherance of the objects for which it has been established, including sums voted by Parliament to that end." The Trust can take and hold land and can "accept any trusts, whether subject to special conditions or not, in furtherance of the said objects." A substantial gift has already been made to the Trust by two members of the Institution of Mechanical Engineers for the conduct of a research in mechanical engineering to be approved by the department in the hope that this example will be followed by other members of the institution.

Mr. H. Frank Heath, C.B., has been appointed permanent secretary of the new department, to whom all correspondence should be addressed until Dec. 31st next at the Offices of the Board of Education, Whitehall. On and after Jan. 1st, 1917, all correspondence should be addressed to the Secretary, Department of Scientific and Industrial Research, Great George-street, Westminster, S.W.

THE MENTAL STRAIN OF INTERNMENT.

THE statement in a recent Berlin telegram that 1 in 10,000 of all prisoners of war in Germany have committed suicide confirms the anxiety which has been widely felt regarding the mental effect of confinement on our own prisoners of war and interned civilians. Dr. zum Busch, in an article from which we have already quoted, made the frequent mental breakdown of the interned German civilian in this country the occasion of reproach to our methods. But as much doubtless depends on the mental condition and equipment of the prisoners as on the conditions of their confinement. In this connexion it is consoling to learn from Dr. Herbert Bury, Bishop for North and Central Europe, that during his visit at Ruhleben last week he found no evidence of ennui or mental deterioration among the large population there and only 60 to 70 cases of mental breakdown as the product of two years' confinement, these being isolated in a sanatorium half an hour distant from the internment camp under the care of Dr. Weiler, a well-known alienist. This reassuring result Dr. Bury attributes to the splendid spirit of our interned men as well as in some measure to the means taken to stimulate their mental life. Regular classes of various kinds are held. There is a well-equipped scientific workroom and biological laboratory, and Dr. Bury's allusion to the special need at present of a spectroscope emphasises the high level of the work being done. The whole is in marked contrast to the terrible mental depression once prevailing at Gardelegen and Wittenberg as a result of hardship and ennui.

THE WHIPPING CRAZE.

THE alarming increase of juvenile crime in our large cities during the past few months has given rise to a widespread demand for the use of sterner methods in dealing with youthful offenders, and it has been urged with special insistence that an effective means of counteracting this growing evil would be to enlarge the powers of courts of summary jurisdiction so as to extend the whipping age from 14 to 16 years. Proposals of this drastic character are peculiarly congenial to the moral atmosphere of the moment, and it would not, therefore, be quite safe to assume that the warm support which this proposal has received from magistrates and other officials, and from a section of the press, is necessarily, or even probably, the outcome of cool and dispassionate judgment. In any case, it is clearly desirable, before the adoption of so considerable and so reactionary a change in penal methods, that there should be some definite evidence to connect the present outbreak of disorder with conditions on which corporal punishment may be reasonably expected to exercise a real influence. So far, it can hardly be said that any evidence of this sort is forthcoming. *Prima facie*, indeed, it would rather appear that the more obvious causes of the growth of juvenile crime would not be affected at all, or would be affected in an undesirable way, by the freer use of whipping. It is as true of the youthful offender as it is of the adult criminal, that the certainty or the strong probability of detection is a far more effectual deterrent than any severity of punishment. And no fear of the birch will prevent the young hooligan from recognising that under present conditions, with darkened streets and a depleted police force, his chances of being caught are fairly small. The threat of whipping would be equally ineffectual against what is probably a more frequent and more potent cause of youthful misconduct—namely, the spirit of adventure engendered by the war. This spirit would not be cowed by the fear of a whipping; it is much more

likely, indeed, that the added element of physical risk would act as a stimulus rather than as a deterrent, and that inclusion in the police court "casualty list" would merely give the victim something of the glory of a wounded hero. In this connexion it has also to be borne in mind that judicial whipping, whatever be its value as a corrective of criminal tendencies, may in many cases have permanent psychic effects of a peculiarly undesirable kind, especially when the punishment is inflicted on boys about the age of puberty. This is an aspect of the question about which advocates of corporal punishment generally know very little, and they may therefore profit by perusing the sensible remarks which Mr. H. S. Salt devotes to the point in his recently published essay on "The Flogging Craze" (George Allen and Unwin, Limited, London, 1916, price 2*s.* 6*d.* net). They may also derive some benefit from pondering the other arguments which Mr. Salt has set out in his interesting, if somewhat polemical, statement of the case against flogging. These arguments do not, perhaps, establish all that the author would infer from them, but they will certainly go far to strengthen the view that the remedy for juvenile lawlessness is to be sought, not in the rehabilitation of the somewhat discredited method of the birch, but in the direction into healthier channels of the exuberant and adventurous energies of boyhood. The best way to cure the boy criminal is, if possible, to turn him into the Boy Scout.

INFANTILE MORTALITY IN BRITISH COLUMBIA.

IN British Columbia the deaths of infants under one year are mentioned in each of the two latest annual health reports, and they are noticeably few, giving very low figures of infantile mortality, 45 in 1914 and 57 in 1915. Of a province so extensive, larger than Spain, with a population of approximately one person to the square mile, minute accuracy in statistics cannot be predicated, but deaths are less likely to go unregistered than births, so the infantile mortality will not be less than that shown on the records. A correspondent in British Columbia has sent us an interesting comparison. Taking the Registrar-General's Report for 1911, he compares the figures for England and Wales in that year with the latest that have come from British Columbia. British Columbia has roughly the population of Warwickshire outside the county boroughs, and a higher birth-rate though fewer women. While of its chief cities Vancouver may be compared with Plymouth as regards size, and Victoria with Chester. Then we see:—

—	Population.	Births registered.	Deaths under one year.	Infantile mortality.
1915.				
British Columbia	396,571	10,270	590	57
Vancouver	120,000	2,680	175	65
Victoria...	40,000	960	47	49
1911.				
Warwickshire ...	394,180	9,547	1,076	113
Plymouth	112,146	2,644	378	143
Chester...	39,047	937	102	109

These figures show how low is the infantile mortality which prevails throughout British Columbia as a result of its large open spaces and the moderate, equable temperature of its more densely populated regions. Again, the mortality from various groups of diseases was markedly lower in British Columbia in 1915 than in England and Wales in 1911. Thus, the Registrar-General's first group (Table XXVIII.), common infectious diseases, in England and Wales 7·57, gave in British Columbia a mortality of only 2·19; for Group II., tuberculous diseases, the figures were 4·15 and 1·28; and for Group III., diarrhœa, 39 and 5·8, less than one-sixth. Consequently, both by reason of its large birth-rate and its small infantile mortality, British Columbia would appear able to rapidly increase its population once the war has ended.

THE MEDICAL DIRECTORY.

THE numerical summary of the medical profession in the new Medical Directory for 1917—the seventy-third annual issue—shows a gratifying increase for 1917 in the number of medical practitioners possessing a registrable qualification in the British Isles. 309 more names appear than a year ago, when there was actually a drop of 2 on the numbers of the previous year. The additions involve an increase of eight pages in the size of the volume, which is otherwise substantially unaltered. The summary of the principal laws affecting the medical profession contains a useful appendix dealing with the legislation of the past year. The honours list, of course, occupies more space than a year ago, and now includes 18 holders of the Victoria Cross and 245 of the Military Cross. The additions in the Directory itself bring it fully up to date with the exception of titles of military rank, which are subject to frequent change. We are glad to see that the section of Practitioners Resident Abroad is retained, although its compilation must involve special difficulties at the present time.

THE jubilee celebration of the New Hospital for Women, Euston-road, is to take place next Tuesday, Dec. 12th, at 2.45 P.M. Sir Alfred Keogh, Mrs. Scharlieb, Sir John Bland-Sutton, and Dr. Louisa Garrett Anderson are expected to speak.

AT the meeting of the Medical Society of London on Monday next, at 8.30 P.M., demonstrations illustrating the principles of the re-education of the wounded will be given. Mr. Arnold Lawson will detail the work being done for the blind at St. Dunstan's and Mr. F. Derwent Wood, A.R.A., will describe "facial restoration." Dr. J. B. Mennell will discuss limping and the re-education of walking, and Mr. McMahon the treatment of shell-shock stammering.

CHILD-WELFARE WORK IN IRELAND.—The Local Government Board for Ireland have not formulated any complete scheme of maternal and child-welfare work, leaving it rather to the various local authorities to submit local schemes for their approval. A sum of £5000 has been ear-marked for this purpose in Ireland. At the recent annual meeting of the Bangor District Nursing Society, Sir John Byers suggested two schemes, one applicable to cities, the other to smaller towns and rural districts. In the first scheme, existing maternity hospitals were to be subsidised to form maternity centres with the opportunity of research work and facilities for pathological examinations. Schools for mothers should be the other agency in this scheme. In the second, the existing nursing associations were to form the basis of the scheme, with the assistance in turn of the doctors of the district and the retention of a few beds at cottage hospitals for serious cases. No scheme has yet been completely arranged for Belfast, Cork, or Dublin.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

—o—

WEDNESDAY, NOV. 29TH.

THE Council resumed its sittings at its offices, 44, Hallam-street, W., Sir DONALD MACALISTER, the President, being in the chair.

Penal Cases.

A case was taken which was adjourned from May 25th—Daniel Evans Powell, registered as of 101, High-street, Tooting, S.W., M.B., C.M., 1894, U.Glasg., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you by your assistance knowingly enabled one Jenny Walter, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Jenny Walter in contravention of the said Act to practise as if she were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board.

At the conclusion of the proceedings of the General Council on May 25th the President announced its decision as follows:—

Mr. Daniel Evans Powell: The Council has carefully considered the charge made against you, which, in effect was that you had by your assistance knowingly enabled a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended, or to be attended, by you, or by her under your direction, thereby enabling her to practise as if she were certified.

The facts alleged against you in the charge the Council has found to be proved.

The Council takes a very grave view, in the public interest, of the danger which arises from medical practitioners lending their names for such a purpose and "covering" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery or otherwise attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter the Council has postponed judgment in your case till the next session in November, of which you will receive due notice. You will then be required to attend, and to produce testimony from your professional brethren as to your character and conduct in the interval.

Mr. Powell attended, and was represented by Mr. Philip Webster Butcher, solicitor.

The Central Midwives Board were represented by Mr. Julius Bertram, their solicitor.

Mr. BUTCHER, on behalf of Mr. Powell, submitted testimonials as to character from a number of registered medical practitioners and expressed regret for Mr. Powell's past conduct.

Mr. BERTRAM stated that as a result of his inquiries he had ascertained that the London County Council had no further evidence to bring before the Council, and he went on to say that he had heard with pleasure the nature of the communication addressed to the Council on behalf of Mr. Powell.

The PRESIDENT announced the decision of the Council as follows:—

Mr Powell: I have to announce to you that the Council has carefully considered the evidence which you have sent, in proper time, as to your conduct in the interval, and the assurance which you have given as to your conduct in the future, and has not seen fit to direct the Registrar to erase your name from the Medical Register.

The Council took up the consideration of the case of Thomas Dixon Cook, registered as of Glendon, Torquay, M.B., C.M. 1879, U. Glasg., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you by your assistance knowingly enabled Mrs. Eliza Martin, whose name has been removed by the Central Midwives Board from the roll of midwives, and Mrs. E. Beare and Mrs. Lamble, neither of whom was certified under the Midwives Act, 1902, to attend women in childbirth, under cover or pretence that such women were attended or to be attended by you or by her under your direction thereby enabling the said Mrs. Eliza Martin, Mrs. E. Beare, and Mrs. Lamble in contravention of the said Act to practise as if they were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board.

Mr. Cook attended.

The Central Midwives Board were represented by Mr. Julius Bertram, solicitor.

Mr. BERTRAM, in opening the case, explained that the complaint arose out of prosecutions before the magistrates of Torquay in respect to the employment of uncertified women as midwives. The Council had always taken the view that an offence had been committed where a practitioner assisted an uncertified woman attending maternity cases to conduct her practice. The allegation here was that none of the cases were Mr. Cook's cases at all. In this case there were many features common to other complaints of a similar nature that had been brought before the Council. The patients varied in their accounts as to whether the services of Mr. Cook were arranged for beforehand, but in the documentary evidence he had submitted Mr. Cook went so far as to say that he never at any time had the intention of being present at the actual delivery.

Several witnesses were called by the complainants. Some of these were women, who stated that they had been attended at their confinements by one or other of the uncertified women in question. Mr. Cook, they said, had visited them afterwards and had signed maternity benefit certificates.

Mr. COOK made a statement on his own behalf. He said that his work was in a parish having many poor people. They were unable to pay the fee for a medical man and a midwife, and there had been a scarcity of certified midwives. He had been asked by a district visitor and others to look after these poor women. The understanding had been that the women who were attending the confinements were to send for him if he was needed. They could be thoroughly depended upon. He never had had any fault to find with them. He had seen the patients afterwards. They were poor, and he did not charge them a maternity fee. He only charged a visiting fee.

The PRESIDENT announced the decision of the Council as follows:—

Mr. Cook: The Council has very carefully considered the charge made against you, which, as you know, was in effect that you had by your assistance knowingly enabled women not certified under the Midwives Act, 1902, to attend women in childbirth under the cover or pretence that the women were attended by you, thereby enabling them to practise as if they were certified. The facts alleged against you in the charge the Council has found to be proved. The Council takes a very grave view, in the public interest, of the danger which arises from a medical practitioner who lends his name for such a purpose and "covers" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery, and whatever may be his personal opinion as to their skill and capacity to attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgment in your case till the next Session, in May, of which you will receive due notice. You will then be required to attend, and to produce testimony from professional brethren in your district as to your character and conduct in the interval.

The Council adjourned.

THURSDAY, NOV. 30TH.

The Council resumed its sittings and the consideration of further penal cases.

FRIDAY, DEC. 1ST.

The Council continued the hearing of

Penal Cases.

The first to be considered was the case of Edmond Heskin, registered as of 27, West-street, Leeds, M.B., B.S. 1900, R.U. Irel., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you were at the Leeds assizes commencing on July 13th, 1916, convicted of the following felony—namely, of unlawfully killing one Blanche Amy Pantrey, and sentenced to 12 months' imprisonment in the second division.

Mr. Heskin did not attend nor was he represented.

The PRESIDENT in intimating the decision of the Council said: I have to announce that Edmond Heskin having been proved to have been convicted of the felony alleged against him in the Notice of Inquiry, the Registrar has been directed to erase his name from the Medical Register.

The Council considered the case of Henry Percy Jelley, registered as of 174, High-street, Homerton, N.E., L.M.S.S.A. Lond. 1910, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you were on July 18th, 1916 convicted at the Central Criminal Court of the following felony—namely, of unlawfully killing one Elizabeth Caroline March, and sentenced to three years penal servitude.

Mr. Jelley did not attend nor was he represented.

The PRESIDENT intimated the decision of the Council as follows: I have to announce that Henry Percy Jelley having been proved to have been convicted of the felony alleged against him in the Notice of Inquiry, the Registrar was directed to erase his name from the Medical Register.

Straits Settlements Medical Qualification.

The Executive Committee reported that it had adopted a resolution to the following effect:—

That any person who holds the L.M.S. diploma of the King Edward VII. Medical School, Singapore, granted after examination in Medicine, Surgery and Midwifery and who is entitled by law to practise Medicine, Surgery, and Midwifery in the Straits Settlements, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886.

Japanese Qualifications.

The Executive Committee also reported that it had adopted a resolution—

That any person who holds the degree of Bachelor of Medicine (Igakushi) of any Government or prefectural special Medical College, or of a private special Medical College designated by a Minister of Education of the Empire of Japan, shall be entitled to be registered in the Foreign List of the Medical Register.

Pharmacopœia Committee.

A report was received from the Pharmacopœia Committee to the effect that the number of copies of the British Pharmacopœia, 1914, which were sold by the publishers between May 20th, 1916, and Nov. 25th, 1916, was 1635. The total number sold since Jan. 1st, 1915, is thus about 27,035 copies. Of the second issue, published in May, 1915, about 1450 copies remained in stock at the present date. A third issue would probably be required in 1917. The committee recorded with gratification that His Majesty has been pleased to confer the honour of knighthood upon Sir Nestor Tirard, senior editor of the Pharmacopœia and secretary to the Pharmacopœia Committee for 20 years.

Anatomy Acts Committee.

Dr. Elliott Smith, Dr. Dixon, and Dr. Symington were added to the Anatomy Acts Committee.

Preliminary Examination in General Knowledge.

The Education Committee presented a report upon the compulsory inclusion of Latin in the preliminary examination in general knowledge. The first part of the report, which led to an interesting debate, became the subject of a motion which would make Latin an optional subject for students who have passed well-standardised preliminary examinations. This motion was carried; but an amendment referring the second part of the report, dealing with the retention of Latin as an obligatory subject of the junior entrance examination, back to the Education Committee was carried.

Recommendations.

The Council agreed to the adoption of the following recommendations by the Education Committee re-stating its conditions of recognition:—

I. That the Regulations prescribed by the Council for the recognition of examinations as published on pages 7 to 11 inclusive of the "Regulations of the General Medical Council in regard to the Registration of Medical and Dental Students," shall be altered so as to read as follows, viz.:—The following Regulations are subject to alteration and addition from time to time.

1. It shall be delegated to the Education Committee to prepare and issue from time to time a list of examining bodies whose examinations in general education fulfil the conditions of and are specially recognised by the General Medical Council.

2. The following examinations have been approved by the Council; (*a*) The final examinations for the degrees in arts and science of any University of the United Kingdom or of the British Dominions. (*b*) All examinations which are accepted for matriculation in the Faculties of Arts and Science in any University of Great Britain, provided the pass-certificate includes English, mathematics, and at least two other subjects named in the following list: Latin, Greek, Arabic, Persian, French, German, Spanish, Italian, Russian, or any approved modern language, history, geography, natural philosophy or physics, chemistry, biology, physical geography and geology. (*c*) All examinations not included under the foregoing section (*b*), which are accepted for matriculation in the Faculty of Medicine in any University of the United Kingdom provided the examination is completed at not more than two periods of examination, and that the pass-certificate includes English with geography and history, mathematics, Latin, and at least one other subject named in the following list: Greek, Arabic, Persian, French, German, Spanish, Italian, Russian. (*d*) The Council may grant special recognition to the following examinations not included under the foregoing sections (*a*), (*b*), and (*c*):—(1) The final examinations for the degree in arts and science of any specially recognised foreign University. (2) Examinations conducted by approved examining bodies within the United Kingdom under the provisions set forth in the foregoing section (*c*).

3. Examinations conducted by approved Examining Bodies out of the United Kingdom under the provisions set forth in the foregoing section (*c*), and under such other conditions as the Council may impose in each case.

II. That nothing in the previous recommendation shall affect Ireland, and that the rules hitherto in operation as published in the Council's "Regulations for Registration" of June, 1916, shall continue in force in that country.

Dental Education and Examination Committee.

Mr. TOMES presented a report from the Dental Education and Examination Committee dealing with matters of detail. He observed that there was a shortage of dentists in this country. The report was received.

The PRESIDENT announced that the Council had considered *in camerâ* a report from the Dental Education and Examination Committee in regard to the dental curriculum.

Public Health Committee.

Sir J. W. MOORE presented a report from the Public Health Committee dealing with the diplomas in Public Health granted by various licensing bodies. He explained that the report was an interim one. The report was remitted to the committee for completion and comment.

Apothecaries' Hall of Ireland.

Dr. TAYLOR presented the report of the Examination Committee, which had reference to the various matters relating to the Apothecaries' Hall of Ireland. He moved that the Council adopt the recommendation of the committee to the effect—

That the Irish Branch Council be authorised to appoint for a period of one year a deputy to attend and be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall for the purposes set forth in Sect. 18 of the Medical Act, 1858; that the Deputy so appointed present to the Council a report on the general character of such examinations; and that he be paid a salary of £50 for the year in question.

Sir J. W. MOORE seconded.

Dr. MAGENNIS moved as an amendment—

That the inspections of the examinations of the Apothecaries' Hall of Ireland by deputy or other person be suspended until such time as the inspections of the other licensing bodies, which have been suspended for some years, be resumed.

He contended at considerable length that the Apothecaries' Hall of Ireland had been unjustifiably harassed in regard to their examinations.

The amendment did not find a seconder.

The motion of Dr. Taylor was agreed to.

The session then concluded.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Adherent Cicatrices Freed without Operation.

THE persistence of adherent cicatrices in gunshot wounds is a frequent cause of impairment to the function of muscles, blood-vessels, and nerves, and may require operative interference. Dr. Bourguignon and Dr. Chiray have described at the Medical Society of Hospitals in Paris a proceeding which appears to solve this difficult problem, and consists in ionisation with potassium iodide. Experimental research as well as actual cases treated have already shown that the method produces rapid liberation of muscles and nerves, and probably also of the blood-vessels.

Provisional Artificial Limbs.

Dr. Svindt, the Danish head of the Danish hospital in Paris, introduced some time ago the use of a cardboard leg for amputation cases. It consists of a long hollow cone attached at the smaller end to a short wooden cylinder provided with a rubber disc, the whole resembling a big megaphone. The leg is made of two long trough-like pieces of cardboard cut to the measure of the sound limb, tapering below and embracing the stump above. The pieces fit one into the other, the stump is inserted, and silicated bandage wound round the whole from top to bottom. Above, the margin of the hollow interior is rounded off with cotton wool; it is horizontal and surrounds the limb at about the level of the perineo-crural fold, the base of the ischium, and the lower crest of the great trochanter, resting upon the ischium. Equilibrium is ensured by a broad strap attached in front to the upper part of the cone slightly on the internal face, passing over the opposite shoulder and fixed to the cone behind. The end of the stump is free in the cone and does not rest on any platform; the apparatus can hence be adapted to stumps not quite soundly healed. The weight of the limb varies from 1·3 to 1·7 kg.—round about 3 lb. It can support a weight of 200 kg.; the price is between 5 and 6 frs.; and it can be delivered 3 to 4 days after the measure has been taken. From the second day of trial—in some cases from the first—the patient can dispense with his crutches, using only a stick with rubber end. The great advantage of the apparatus is that it permits an amputation case to walk two or three months sooner than with his permanent artificial limb; he therefore does not have to watch his stump acquiring the faulty position which it always does when crutches preclude its proper use.

The Susceptibility to Cold of Tropic-dwellers.

M. Bussières, médecin-major of colonial troops, has made an investigation into the way in which soldiers coming from tropical Africa generally manifest their special susceptibility to cold. He found that 20 per cent. of the bed-patients in camp at St. Raphaël-Fréjus and at the Senegalese hospital at the Galliéni camp had albumin in their urine, showing a renal affection. In pneumonic cases the percentage rose to 100. In these men there exists a condition of the kidney produced by cold which facilitates a renal infection with the pneumococcus. Black soldiers, according to M. Bussières, are incapable of resisting a winter in the trenches and must be transferred to the South during the bad season.

A Military Sanatorium.

M. Justin Godart, Under Secretary of State for Hygiene, has just officially opened the Sanatorium of Beau Soleil for the reception of military convalescents with early tuberculosis. The sanatorium, which owes its origin to two generous legacies, is situated on a wooded hill, with full south aspect, looking out over the Isles of Hyères.

Dec. 4th.

THE CONTROL OF VENEREAL DISEASES.

SOME PRACTICAL POINTS IN THE EXAMINATION OF SPECIMENS FOR DIAGNOSIS IN VENEREAL DISEASES.

II.[1]

THESE brief notes have been written by Mr. CLAUDE H. MILLS, assistant surgeon to St. Paul's Hospital for Skin and Genito-urinary Diseases, medical officer in charge of the syphilis wards at Rochester Row Military Hospital, 1914–16. Their object is to help those who have not hitherto had a wide experience in this specialty to arrive at an early, rapid, and accurate diagnosis.

(a) For Detection of Gonococci.

(i.) In the case of a smear preparation obtained from an early case of urethritis when a mixed infection is improbable—i.e., during the first week or ten days—staining with Kühne's methylene-blue for two to three minutes provides a rapid and accurate diagnosis, the formula being: Methylene-blue, 1·5 gm.; abs. alcohol, 10 c.c; dissolve for 24 hours and add 5 per cent. ac. carbolici, 100 c.c.

Precautions.—Do not overheat slide in fixing. Always apply the stain through a filter-paper. With this method a positive diagnosis is only justifiable when the specimen exhibits very numerous intracellular diplococci with their adjacent borders concave.

(ii.) In specimens obtained from a urethritis at a later date, when the infection is likely to be mixed, and always in examining urinary deposits, a differential stain is essential, and for this Gram's method, with its several modifications, is indispensable.

Precautions.—As above. Avoid delay in examining a specimen of urine, which should always be freshly passed. Gonococci become swollen and rounded if allowed to remain too long in the urine, closely resembling staphylococci, which latter tend to become Gram-negative under these circumstances.

(iii.) The most reliable method of all is that of isolation by culture, the most suitable medium for gonococci being blood-agar (or Gurd's and Wertheim's serum media). In all cases possessing the possibility of litigation, corroboration of the diagnosis by culture should never be omitted.

Precautions.—(a) Special care should be taken to obtain the specimen as free from contamination as possible, by the methods previously described. (b) Transfer specimen direct to warm medium (37° C.) and replace same in incubator, permitting a minimum of cooling down.

(b) Method for the Detection of the S. pallida.

(i.) *Ground stains.*—In this method the material for the examination is well mixed with an equal quantity of the stain (one minim of each) at one end of the slide, and then drawn out as a film. The colourless spirochætes are distinguished standing out in a stained background.

Burri's Indian-ink method.—The ink that I have found most satisfactory for this work is the "Chin-Chin" brand (Gunther and Wagner), and at the time I was relying chiefly upon this method,[2] I found that the addition of tr. iodine ♏. xv. to the ½ oz. gave a better film with cleaner definition.

Technique.—The clean slide upon which the film is drawn should be free from scratches and be polished with silk. The edge of the slide used for the "drawing" should have irregularities previously removed by gently grinding upon an oil-stone. Do not make the film too thick; removal of excess of fluid with filter-paper before "drawing out" will prevent this. Specimens should include a minimum number of blood cells.

Harrison's collargol method.—As above, using 5 per cent. collargol in place of the Indian ink. This gives a less granular background, but of a lighter colour (red-brown).

Congo-red method.—As above, using 2 per cent. Benian's Congo-red. The dry film is then washed with 1 per cent. solution of HCl in abs. alcohol. The background is a homogeneous light blue. Spirochætes stand out faintly by contrast, but when visible their shape is well defined.

Precautions.—If the specimen is taken from the mouth, remember that *S. pallida* is indistinguishable from *S. microdentium* by these methods; if from the glans penis or inner surface of the prepuce, *S. gracilis* is usually present. Some of the fine varieties of this spirochæte are very apt to be misleading. When dead one cannot easily distinguish that they are apparently ribbon-shaped in transverse section as opposed to the round-bodied *pallida*. The size both of the spirochæte and its spirals must always be gauged by comparison with a red-blood cell, preferably in the same field.

(ii.) *Spirochæte stains.*—Giemsa's and Leishman's stains are those most commonly used for staining film preparations of spirochætes. It is well to remember that *S. pallida* stains more faintly than the other varieties of spirochætes. For demonstrating the flagella Loeffler's stain is usually employed.

(iii.) If a *piece of tissue* (preputial chancre, excised gland, &c.) is received for examination in 10 per cent. formalin solution it should be cut first into slices one-eighth of an inch in thickness and then stained by Levaditi's method. The *S. pallidæ* stand out very clearly in the subsequent sections, being stained a deep black. To obtain the best results it is better to allow the specimen to soak in the 1·5 per cent. silver-nitrate solution for at least a week rather than the three days usually recommended. Levaditi's pyridin method is much quicker, as the whole process can be completed within 24 hours, but the spirochætes do not show up so clearly.

In all of the above methods—ground stains, spirochæte stains, stained sections—we are examining the spirochætes when dead, and are therefore deprived of the most distinctive characteristic for differentiation—i.e., their movements. None of these methods is to be compared with the dark-ground illumination for simplicity, speed, and accuracy.

(iv.) *To examine specimen by the dark-ground illumination.*—Transfer the fluid obtained from chancre, gland puncture, mucous patch, cutaneous syphilide or suspected lesion in the mouth or pharynx, either direct with platinum loop or from capillary tube on to a clean cover-slip (No. 1 thickness) held in Cornet's forceps. If the specimen unavoidably contains much débris or blood it should be diluted with a drop of normal saline solution and diffused over cover-slip. This should now be gently lowered with the moist surface downwards on to the centre of a clean slide. It is a good plan to regulate the process with a metal spud, gradually withdrawing the same from beneath one edge of the cover-slip whilst the opposite edge rests upon the slide. If the slide is first moistened by passage through steam a more even contact is ensured and air-bubbles are avoided. The excess of fluid should now be expressed by applying firm pressure with a piece of filter-paper placed over the cover-slip. The object of this is to obtain as thin a layer of fluid for examination as possible, thereby ensuring the best definition under dark-ground illumination. If a greater depth of fluid is permitted currents will develop in same when the slide becomes warm—usually at different levels—rendering focussing difficult and the spirochætes have ample depth to dive in or out of focus. Even in a shallow preparation these currents will be troublesome should the cover-slip overlap the edge of the slide or, again, should any large air-spaces be present, which, of course, expand when temperature becomes raised. In using a dark-ground condenser of short focal length (this should be ascertained) slides should only be used the thickness of which comes within this margin. The Swift condenser is very useful for this work, having a focal length which will permit of the use of almost any ordinary slide, and by using a thin slide there is ample play for very delicate adjustment. The condenser should always be accurately centred. With the model just mentioned this is a very simple procedure. The condenser is first raised flush with the movable stage and with the two-thirds objective the two circles cut on the face of the condenser are focussed. By means of the two screws for this purpose the circles are centred. The condenser is now lowered and a drop of oil placed upon its upper surface. Oil is also placed on top of the cover-slip and corresponding under-surface of the slide, which is now placed upon the movable stage. The condenser is raised until its oiled surface makes contact with that of the slide; air-bubbles are thus avoided. The 1/12 inch objective is now gently lowered on to the oiled cover-slip and focussed and the reflector is further adjusted. The condenser should now be raised or lowered, as the case may be, until the maximum dark-ground effect is attained.

Regarding illumination I have nothing to add to the description furnished with the apparatus depicted in THE LANCET of Oct. 21st for this purpose. The commonest mistake made by the beginner is to focus the upper surface of the slide, not the moving particles in the fluid specimen. It is a wise plan first to focus a red blood corpuscle and then perfect the adjustment of reflector and dark-ground condenser.

In searching a field one must be constantly altering the fine adjustment, since it is very easy to miss a *S. pallida*,

[1] Article I. was published in THE LANCET of Dec. 2nd, 1916, p. 953.
[2] Guy's Hospital Gazette, December, 1911, "A Report upon the Use of Salvarsan in 50 Cases of Active Syphilis Treated as Out-patients."

though present, if it is not in the focal plane. I always make it a rule never to diagnose the case on the finding of but one *S. pallida*. If there is one there are bound to be more, and the finding of half a dozen typical *pallidæ* always eliminates the personal equation of error. In examining a specimen from a lesion of the fauces or buccal cavity this rule should never be broken, with this exception that one is at times fortunate enough to obtain a *S. pallida* and a *S. microdentium* in the same field and then the diagnosis by comparison is at once easy and devoid of error.

(*c*) *Differential Diagnosis in Spirochætes.*

With regard to differential diagnosis in the spirochætes met with in examining specimens in venereal diseases by dark-ground illumination, the following points should be observed:—

Size.—The standard for comparison for length should be the diameter of a red-blood corpuscle (7·5 μ), which can always be included in a specimen, red cells being, in fact, rarely absent.

Shape.—Does the spirochæte terminate abruptly at each end or does it fade away so that one cannot actually distinguish its termination? If the latter, one is often able to detect the existence of a flagellum by observing particles adherent to same—a blank space intervening. I have observed two *S. pallidæ* which have become entangled, still held together at the one pole by their flagella after their bodies were free. Is the *body* of the spirochæte uniform in width throughout? Does it appear to be flattened, ribbon-shaped, or is it round in transverse section? Note the irregularity of the spirals—i.e., would each third of the total length contain an equal number of spirals? Are the spirals "steep," rendering it difficult to focus the whole of the body, thereby producing the "string-of-beads" effect?

Movements.—Be certain that the movements are intrinsic and not merely produced by currents in the surrounding fluid. Are these continuous or intermittent, the spirochæte lying as though dead for some seconds, suddenly resuming vigorous movement? Note the flexibility, also rate of progression. Is there a definite "corkscrew" movement of rotation, always in the one direction, or can the spirochæte reverse same? Do not confuse this movement with a wriggling movement in one plane analogous to that of a snake through the grass. This latter *S. microdentium* frequently exhibits, but *S. pallida* never. Notice any special configuration, such as the formation of a loop at one end, or of a complete circle. A movement to be noted is a curious diving out of focus, as though the spirochæte were "standing on its head."

Refractivity.—Note if the rays are refracted in a pure white light, or whether they are broken up on the surface of the spirochæte, giving same a yellow tinge.

(i.) *S. balanitidis.*

This spirochæte is always present apart from any inflammatory process beneath a moist prepuce.

Size.—A small spirochæte rarely exceeding 5μ in length (less than the diameter of a red-blood corpuscle). It is however, coarse in comparison to *S. pallida*, being nearly as broad as *S. refringens*.

Shape.—Usually possesses but two complete shallow curves, often one and a half. Its ends are blunt, having no flagella. One end usually thicker than the other. True focussing will reveal that it is apparently ribbon-shaped. In some lights it appears to have an undulating membrane.

Movements.—Very rapid in fresh specimen—almost dazzling; capable of rapid progression, which is chiefly produced by a wriggling along in one plane (snake-like).

Refractivity.—Very bright, but yellow tinge in faulty focus.

(ii.) *S. gracilis.*

This spirochæte is normally present beneath a moist prepuce. I have, however, found it in venereal sores on or about a dry glans penis. I have never detected it in specimens from gland punctures. This fact is important, since *gracilis* is the spirochæte that most resembles *S. pallida* in a genital chancre. It is usually removed from a lesion by careful cleansing, its habitat being in the superficial débris, not in the deeper layers. It is a hardy spirochæte, since I have seen it exhibit active movements after 30 days' confinement in a sealed capillary tube.

Size.—Length usually 6 to 8μ and fairly constant. Breadth 0·5μ (half that of *S. refringens*, twice that of *S. pallida*).

Shape.—It is a blunt-ended spirochæte, possessing regular curves, which are more rounded and not so steep as those of *S. pallida*. The terminal spirals are usually somewhat turned in on themselves. By slightly varying the focus one can quickly distinguish that it appears to be ribbon-shaped, exhibiting a broad surface alternating with a thin edge.

Refractivity.—When imperfectly focussed it will assume a yellow tint.

Movements.—Progression good compared with *S. pallida*, sometimes moving backwards and forwards in a straight line, pausing at the turn. Exhibits the "corkscrew" and also "concertina" movements. Is not so flexile as *S. pallida*.

(iii.) *S. refringens.*

This spirochæte, as its name implies, refracts the light in a dazzling manner. A coarse, blunt-ended spirochæte, with its few shallow irregular spirals, it suggests a resemblance to a miniature threadworm rather than a delicate spirochæte. It is present in many ulcerative or dirty papillomatous conditions, and is so readily distinguished that a detailed description here is unnecessary.

(iv.) *S. pallida.*

Size.—The variations in length are considerable, varying from 5 to 25μ, but, as far as one is able to judge, the width seems to be constant, being placed at 0·25μ. There is always a fairly wide range in the length of the individual *S. pallida* obtained from a common source, but one frequently observes that in the one case there may be a preponderance of very long spirochætes, whilst from another the majority will be of the short variety. It is the most slender spirochæte met with outside the buccal cavity and the only type possessing flagella (excluding *S. pertenuis* of yaws—happily foreign to this country).

Shape.—The spirals are extremely regular and closely set, rendering the individual curves steep for their breadth. It is this depth of the curves that produces the "chain of-beads" effect under the dark-ground illumination when the apex of each curve is focussed. How one can determine the presence of the flagella has been already described. Its body is not flattened from side to side.

Refractivity.—*S. pallida*, compared with the above spirochætes, is very feebly refractile, and the rays deflected are of a purer white than those of any of the others—a cold, non-dazzling white, devoid of a halo of illumination extending to the surrounding medium.

Movements.—Progression very feeble, and provided there are no currents a *S. pallida* will remain within the field for hours. Its most vigorous movement is rotation upon its long axis (corkscrew). It is extraordinarily flexile, throwing itself into acute angular bends, hinge-like, always returning to the almost rigid straight. It may exhibit slight contraction and expansion in length. Waves pass from time to time from one extremity to the other. Often it will show a loop either at an extremity or towards the centre, persisting for some time. Another configuration is a complete circle, the two flagella becoming entwined. A characteristic movement is an abrupt dive out of focus—even in the shallowest of specimens—analogous to that of a porpoise. Whilst perpendicular one can detect its presence by the disturbance of the surrounding particles. It seems incapable of freeing itself at all quickly after a collision.

(v.) *S. microdentium.*

This is the spirochæte common in dental caries and pockets and is frequently present in the exudate or slough from an ulcerative lesion in the mouth or fauces. Its importance in this work is solely due to its resemblance to *S. pallida*.

Features.—The length of this spirochæte rarely exceeds 6μ. Its width is similar to *S. pallida* and its shape is identical, excepting that flagella cannot be detected. The refracted rays are not of such a pure white. Regarding movement, its progression is vigorous compared with *S. pallida*, which it attains chiefly by a gliding movement similar to a snake, not rotary. It is not so flexile, nor can it throw such angular bends as the above, and it does not resume its straight position as persistently.

(*d*) *Cerebro-spinal Fluid.*

The cell count and globulin estimation should always be done immediately. For the former Fuchs and Rosenthal's counting chamber is recommended by Harrison. For the latter the Nonne-Apelt saturated ammonium sulphate test is rapid and simple. The Wassermann reaction can be done at leisure.

(*e*) *Wassermann Test.*

It would be outside the object of these practical notes to discuss the technique of the Wassermann test with its many modifications.

LITERARY INTELLIGENCE.—Under the title of "Poverty and its Vicious Circles," Messrs. J. and A. Churchill are publishing a book by Dr. Jamieson B. Harry, the author of "Vicious Circles in Disease."

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

W. D. Pearman, N. S. Nairne, J. T. Macnab, T. Grimson, and J. L. Lamond have been appointed temporary Surgeons.

ARMY MEDICAL SERVICE.

TERRITORIAL FORCE.

Lieut.-Col. H. G. Falkner to be Assistant Director of Medical Services, and is granted the temporary rank of Colonel whilst holding the appointment.

Lieut.-Col. R. R. Sleman, M.D., London Field Ambulance, to be Assistant Director of Medical Services, London Division, and to be temporary Colonel whilst so employed.

ROYAL ARMY MEDICAL CORPS.

Major W. Byam is restored to the establishment.

Majors (temp. Lieut.-Cols.) J. G. Bell, D.S.O., and J. D. Richmond relinquish their temporary rank on re-posting.

Major H. S. Peeke (Reserve of Officers) to be temporary Lieutenant-Colonel whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital.

Capts. (temp. Majors) T. J. Crean, V.C., D.S.O., and G. P. Taylor relinquish their temporary rank on re-posting.

Temp. Capt. John M. Macmillan, from Unattached List, to be temporary Captain.

To be Lieutenants: J. F. C. Braine, G. W. Heckels, and E. Butler, from University of London Contingent, Officers Training Corps.

Major L. S. Mackid, C.A.M.C., resigns his temporary commission.

Temporary Captains relinquishing their commissions: C. Yorke, F. G. Ralston, H. M. Rainsford, and I. R. MacLeod. A. D. Vernon-Taylor on account of ill-health.

Temporary Lieutenants relinquishing their commissions: W. F. Gibb and J. S. Taggart. H. E. Girdlestone on account of ill-health.

SPECIAL RESERVE OF OFFICERS.

To be Lieutenants: E. O. A. Singer (from Edinburgh University Contingent, Officers Training Corps), J. H. Vance, E. M. L. Morgan, T. P. Williams, and G. S. Wilson (from University of London Contingent, Officers Training Corps).

TERRITORIAL FORCE.

Eastern Mounted Brigade Field Ambulance: Lieut. E. H. Coyne to be Captain.

South Midland Mounted Brigade Field Ambulance: Lieut. O. Cook to be Captain.

Welsh Border Mounted Brigade Field Ambulance: Lieut. (temporary Capt.) D. P. H. Gardiner to be Captain.

London Field Ambulance: Lieut.-Col. R. R. Sleman is seconded whilst holding appointment as Assistant Director of Medical Services.

London Sanitary Company: Lieut. G. S. Elliston to be Captain.

Highland Mounted Brigade Field Ambulance: Lieut. G. W. Deeping to be Captain.

Lieut.-Col. and Hon. Surg.-Col. H. Colgate, from Attached to Units other than Medical Units, to be Lieutenant-Colonel.

Capt. C. C. Ling, from Attached to Units other than Medical Units, to be Captain.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following officers:—

Captains to be Majors: H. C. Buckley, M. R. C. MacWatters, W. H. Hamilton, J. Cunningham, and H. Falk.

Lieutenants to be Captains: E. R. Armstrong, C. J. Stocker, Sahib Singh Sokhey, Atul Krishna Sinha, Subramanya Doraisamy, A. Seddon, J. Findlay, W. C. Spackman, Jyotish Chandra De, Nanalal Maganlal Mehta, R. M. Easton, C. H. P. Allen, and R. V. Martin.

The King has approved of the retirement of Lieut. V. P. Norman (on account of ill-health).

COLONIAL MEDICAL SERVICES.

West African Medical Staff.—The following deaths are reported: Mr. H. P. Lobb, provincial medical officer, Nigeria, Northern Provinces; and Mr. W. C. E. Bower, medical officer, Nigeria, Northern Provinces, who was killed in action while serving as temporary Lieutenant, R.A.M.C. Dr. J. A. Pickels, senior sanitary officer, Nigeria, Southern Provinces, has been appointed principal medical officer, Nigeria, Northern Province; and Mr. H. A. Foy, sanitary officer, Nigeria, Northern Provinces, senior sanitary officer, Nigeria, Southern Provinces. Mr. W. J. D. Inness, sanitary officer, Nigeria, has been transferred from Southern Provinces to Northern Provinces. Dr. G. J. Pirie, medical officer, Nigeria, Northern Provinces, has been appointed sanitary officer, Nigeria, Southern Provinces; Dr. H. O'H. May, medical officer of health, Gold Coast, sanitary officer; and Dr. A. C. N. McHattie, medical officer, Nigeria, Northern Provinces, medical officer of health, Zanzibar. Mr. F. Manning, principal medical officer, Nigeria, Northern Provinces, has retired on pension. Dr. G. F. Darker, medical officer, Nigeria, Northern Provinces, has been re-employed, and Dr. H. G. F. Spurrell has been appointed temporary medical officer, Gold Coast. The following officers, whose services have been placed at the disposal of the Army Council, have been given temporary commissions in the Royal Army Medical Corps:—G. G. Butler, R. Semple (Sierra Leone), H. O'H. May (Gold Coast), R. C. Macpherson, L. W. Davies, H. North, and W. E. Glover (Nigeria).

Other Colonial Services.—Dr. O. J. Murphy has been appointed assistant to the colonial surgeon, St. Helena.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The November issue of this journal opens with a joint paper by Temporary Captain Herbert Henry and Temporary Major T. R. Elliott, F.R.S., on the Morbid Anatomy of Wounds of the Thorax, detailing an investigation undertaken at the instigation of Colonel Sir John Rose Bradford, consulting physician to the British Expeditionary Force. Of 100 fatal gunshot wounds of the thorax seen at base hospitals in France 96 were caused by septic poisoning and four by hæmorrhage. Captain J. Gordon Thomson and Captain D. Thomson contribute a preliminary illustrated note on the Occurrence of Peculiar "Bodies" of Probably Protozoan Nature frequently Found in the Stools of Dysenteric Patients, and Lieutenant-Colonel C. J. Martin and Major W. G. D. Upjohn discuss the Distribution of Typhoid and Paratyphoid Infection among Enteric Fevers at Murdos from October to December, 1915. In a paper by Captain C. H. Treadgold on Serum Disease and Anaphylaxis the author arrives at the following, among other, conclusions: 1. "Accelerated reactions" are very far from being invariable, while "immediate reactions" are comparatively rare. 2. Dangerous sensitisation after the injection of horse serum is very seldom seen in the human subject. 3. While in anaphylaxis sensitisation and intoxication are effected by the unaltered antigen, the symptoms of serum disease are mostly due to the toxic action of the split products. 4. All these phenomena are due to a series of physical or physico-chemical changes, the nature of which is very imperfectly understood at the present time. Other articles of interest are: Arrangements for the Care of Cases of Nervous and Mental Shock coming from Overseas, by Temporary Lieutenant-Colonel W. A. Turner; and Continued Fevers of Obscure Origin among Soldiers of the British Forces in Greece, by Lieutenant-Colonel G. Chambers, C.A.M.C.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census 7247 births and 5128 deaths were registered during the week ended Saturday, Nov. 25th. The annual rate of mortality in these towns, which had been 12·6, 13·3, and 13·0 per 1000 in the three preceding weeks, rose in the week under notice to 15·4 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 13·0 per 1000, and was equal to that recorded in London. Among the several towns the death-rate during the week ranged from 5·3 in Oxford, 8·4 in Ilford, 8·8 in Barrow-in-Furness, 9·1 in Ipswich, and 9·2 in Wallasey, to 20·4 in Merthyr Tydfil, 21·1 in Rotherham, 23·2 in Derby, 25·9 in Newport (Mon.), and 31·0 in Great Yarmouth.

The 5128 deaths from all causes were 820 above the number in the previous week, and included 210 which were referred to the principal epidemic diseases, against 250 and 241 in the two preceding weeks. Of these 210 deaths, 105 resulted from infantile diarrhœal diseases, 45 from diphtheria, 29 from measles, 14 from whooping-cough, 11 from enteric fever, and 6 from scarlet fever, but not one from small-pox. The annual death-rate from these diseases was equal to 0·6, against 0·7 per 1000 in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had steadily declined from 477 to 112 in the ten preceding weeks, further fell to 105, and included 26 in London, 10 in Liverpool, 7 in Birmingham, and 5 in Manchester. The deaths referred to diphtheria, which had been 39, 60, and 56 in the three preceding weeks, fell to 45, of which 9 were registered in London and 3 each in Coventry, Sheffield, Hull, and Cardiff. The fatal cases of measles, which had increased from 13 to 40 in the four preceding weeks, fell to 29, and included 12 in London and 6 in

Coventry. The deaths attributed to whooping-cough, which had been 20, 17, and 12 in the three preceding weeks, rose to 14, of which 3 occurred in Cardiff and 2 in Liverpool. The 11 deaths referred to enteric fever were equal to the number recorded in each of the two preceding weeks, and included 4 in London. The fatal cases of scarlet fever, which had been 12, 9, and 10 in the three preceding weeks, fell to 6, but showed no excess in any town.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1141, 1171, and 1170 at the end of the three preceding weeks, fell to 1123 on Nov. 25th; 120 new cases were admitted during the week, against 146, 157, and 131 in the three preceding weeks. The cases of diphtheria again rose to 1584, against numbers increasing from 1262 to 1556 in the ten preceding weeks; 195 new cases were admitted during the week, against 186, 202, and 193 in the three preceding weeks. These hospitals also contained on Nov. 25th 109 cases of measles, 40 of enteric fever, and 40 of whooping-cough, but not one of small-pox. The 1307 deaths from all causes in London were 153 in excess of the number in the previous week, and corresponded to an annual death-rate of 15·8 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 132 to 236 in the five preceding weeks, further rose to 294 in the week under notice.

Of the 5128 deaths from all causes in the 96 towns, 206 resulted from violence, 414 were the subject of coroners' inquests, and 1537 occurred in public institutions. The causes of 55, or 1·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Leicester, and in 66 other smaller towns. Of the 55 uncertified causes, 14 were registered in Birmingham, 4 in London, and 3 each in Liverpool, Rotherham, and South Shields.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year 955 births and 700 deaths were registered during the week ended Saturday, Nov. 25th. The annual rate of mortality, which had been 13·9, 14·5, and 13·9 per 1000 in the three preceding weeks, rose to 15·4 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 14·0, against a corresponding rate of 13·0 per 1000 in the large English towns. Among the several towns the death-rate in the week ranged from 8·0 in Clydebank, 9·9 in Motherwell, and 11·2 in Kilmarnock, to 16·3 in Glasgow, 18·1 in Greenock, and 18·2 in Dundee.

The 700 deaths from all causes were 66 above the number in the previous week, and included 53 which were referred to the principal epidemic diseases, against 38 and 47 in the two preceding weeks. Of these 53 deaths, 20 resulted from measles, 18 from infantile diarrhœal diseases, 9 from diphtheria, 3 from scarlet fever, 2 from enteric fever, and 1 from whooping-cough, but not one from small-pox. The annual death-rate from these diseases was equal to 1·2, against 0·6 per 1000 in the large English towns. The deaths attributed to measles, which had been 11, 8, and 9 in the three preceding weeks, rose to 20, and comprised 13 in Dundee, 6 in Glasgow, and 1 in Perth. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 18, 13, and 18 in the three preceding weeks, were again 18 in the week under notice, and included 7 in Glasgow, 4 in Edinburgh, and 2 in Coatbridge. The fatal cases of diphtheria, which had been 10, 5, and 8 in the three preceding weeks, numbered 9, and comprised 4 in Edinburgh, 2 each in Glasgow and Aberdeen, and 1 in Greenock. The 3 deaths attributed to scarlet fever were 2 below the average in the earlier weeks of the quarter, and included 2 in Glasgow and 1 in Coatbridge. The 2 fatal cases of enteric fever were registered in Glasgow and that of whooping-cough in Paisley.

The deaths referred to diseases of the respiratory system, which had increased from 74 to 118 in the five preceding weeks, further rose to 131 in the week under notice, but were 191 below the number registered in the corresponding week of last year. The deaths from violence numbered 27, against 37 and 38 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the registration area of Dublin 148 births and 153 deaths were registered during the week ended Saturday, Nov. 25th. The annual rate of mortality, which had been 15·9, 21·3, and 17·7 per 1000 in the three preceding weeks, rose to 20·1 in the week under notice, against corresponding rates of 15·8 and 16·3 per 1000 in London and Glasgow respectively.

The 153 deaths at all ages included 30 of infants under 1 year and 47 of persons aged 65 years and upwards. Five deaths (of infants under 2 years) were referred to diarrhœa and enteritis. The causes of 12 deaths were uncertified, and those of 3 others were the subject of coroners' inquests, while 60, or 39 per cent., of the total deaths occurred in public institutions.

During the same period 165 births and 118 deaths were registered in the city of Belfast. The deaths corresponded to an annual rate of 15·8, or 1·8 per 1000 above that recorded in the previous week, and included 21 of infants under 1 year and 30 of persons aged 65 years and upwards. One death was referred to whooping-cough and 5 others (of infants under 2 years) to diarrhœa and enteritis. The causes of 5 deaths were uncertified, 8 inquests were held, and 29 of the total deaths occurred in public institutions.

Correspondence.

"Audi alteram partem."

"SPONTANEOUS BURNS."

To the Editor of THE LANCET.

SIR,—During the last sixteen months I have seen and treated four very interesting, and as far as my experience goes rare, cases of burns. All these burns, save one, were on the leg, just below the knee-joint. In the first case the burn was in the popliteal space, in the second between the fourth and fifth toes, the opposing skin surfaces showing two black wounds about one-quarter of an inch in diameter; the third case had the lesion over the tibialis anticus about one inch below the crest of the tibia, while in the fourth it was on the inner and posterior aspect of the limb.

On examining the breeches of the men affected nothing was visible on the outer surface of the cloth, but the inner surface revealed a black charred depression roughly circular in outline and about half an inch in diameter, the fibre of the cloth being burned and destroyed, presenting an appearance similar to that which one occasionally sees when the head of a phosphorus match has become ignited between layers of cloth, save that in the former case the burning process had been more persistent, extending over several hours, and had eroded the substance of the cloth to a greater extent, the more resistant fibres of the cloth being spared and forming a sort of open charred network over the depression. The surface of the underpants which had been in contact with the charred area above described was completely burned, and all one saw was a circular hole with black charred edges.

The opposing skin surface, however, presented a remarkable appearance—namely, a perfectly circular ebony-black mark, approximately half an inch in diameter, the circular periphery being the striking feature. On closer examination the lesion showed a clean-cut, punched-out edge, with a flat even floor, and when the glistening black covering, which could not be removed even with forceps, had disappeared, it was found that the destructive process had penetrated as far as muscle-tissue. In short, it looked as if the skin had been carefully and persistently cauterised with silver nitrate. In the first and third cases there was one wound only, while in the second and fourth there were two, one conforming to the usual half-inch diameter, the other, close beside it, about one-eighth of an inch in diameter.

The subjective symptoms, of which I have a personal knowledge, being myself the fourth case, are very slight. After walking about for a few hours one experiences a slight burning sensation, of which little notice is taken, and which is put down to chafing due to rather stiff breeches. As one expects, the chafed surface gradually becomes more painful, and at night-fall one is surprised to find upon examination the condition above described plus a little blood-staining. Within four or five days the black surface disappears and the wound heals slowly with but a slight serous discharge. The lesions in themselves are of little moment, but the results of the erosion may at first look alarming, as was the case in the third patient, whose first intimation that anything was wrong was the sudden onset of violent hæmorrhage, due to the erosion of a small vein. I was sent for hurriedly to attend a driver who was "bleeding profusely from a ruptured varicose vein," a diagnosis apt enough when one saw the blood-stained condition of the patient's breeches and blanket. Cases 1 and 3 were wearing breeches of the

ordinary khaki cloth, men's pattern; Case 4, men's pattern Bedford cord as supplied by ordnance to officers.

The question now remains: What is the cause of these peculiar circular burns? One naturally thinks of irritants, possibly the presence of some chemical used in dying or loading the cloth, and as all the cases have occurred during the summer months one asks, "Are heat and moisture required for the reaction?" In my case I had only worn the breeches for two days before the burns appeared, but during these two days I had done a considerable amount of heavy walking over the steep roads amongst the hills overlooking the Struma valley, one result of which activity was free and profuse perspiration. In Cases 1 and 3 the breeches had been worn probably for weeks before the condition described arose. The first case occurred in France during the earlier and cooler part of the summer (1916), the others in Macedonia, where the climatic conditions were at least semi-tropical.

In considering what may be the causative factors in such a condition one first thought that perhaps a match-head had filtered through a much-worn breeches' pocket and had become caught in one of the numerous creases behind the knee, and that pressure and friction while riding had caused the lesion, but the absence of any sudden painful sensation—the fact that no history of matches being carried in the breeches' pockets could be obtained—excluded this as a possible cause.

Major Henderson, D.S.O., the D.A.D.M.S. of the Division, threw out as a suggestion that particles of chloride of lime from latrine seats retained in the region of the knees may be a probable source of the injury, but in two cases (1 and 4) I can with certainty exclude chloride of lime. However, acting upon the suggestion, I put 1½ gm. of chloride of lime in the knee of my breeches for six hours, during which time I made my usual tour of duty, walking and riding, with the result that I experienced the same burning sensation becoming more and more intense, but upon examination no burned surface was found, merely a slight inflammation extending half-way round the leg, with two or three very slight erosions of the skin where the irritation and friction had been more severe. What at first looked as if it might possibly be the commencement of charring, proved to be merely blood coagulum and could be dusted off with wool, a red chafed surface being left. The lime had no effect on the breeches; blood-stains were present, but there was no destruction of the cloth fibre. Sulphur I have also tried, but with no effect whatever. The head of a safety-match was also without effect.

The question of the causal agent of such a definitely demarcated ulcer with its black charred edge, its deep, rapid, and almost painless erosion should be of interest not only to medical men but to manufacturers of cloth, to whom the question of the chemical salts used in dyeing, loading, and "giving body to the cloth" is of so great importance. Two further cases have been reported in the division by Captain Hamilton, R.A.M.C. It would therefore be of interest to know if medical officers in other divisions had met with similar cases, and to have their ideas on the matter.

I am, Sir, yours faithfully,

MARTIN M. CRUICKSHANK,
Captain, R.A.M.C.

Oct. 30th, 1916.

RHEUMATOID ARTHRITIS APPARENTLY CURED BY "AUTO"-COUNTER-IRRITATION.

To the Editor of THE LANCET.

SIR,—The treatment of chronic rheumatoid arthritis by counter-irritation and keeping open the ulcerated surfaces receives support from the following case.

A man, aged 45, with rheumatoid arthritis in very bad form for nine years—nearly every joint affected, only able to get about on crutches, considerable emaciation—came under my care two years ago. He improved considerably from the administration of arsenic, iron, strychnine, and iodides internally, good stimulating diet and fresh air, avoidance of all thermal-water treatment, and by residence in a high altitude. Six months ago he developed glandular swellings in the neck, one each side, about two and a half inches above the clavicle; they rapidly suppurated and assumed the dimensions of large walnuts. He refused to have them opened, and I then explained to him that as it was his wish to allow them to break it would be an opportunity for treating the arthritis by counter-irritation in keeping the ulcerated surface open.

The patient accepted the suggested course of treatment; the abscesses, after discharging, broke down at their edges, about 2 square inches on each side remained for granulating. From the first no irritating measures seemed called for to keep the surfaces open, so that I advised him to keep them antiseptic with alternate applications of boric ointment and weak carbolic oil. They have not yet healed, but are doing so slowly, and, in a letter received from the patient on Nov. 3rd he says: "The abscesses are gradually going, the discharge is much less, and I have hope now that they are nearing the end of their journey. One marvellous thing is, *of arthritis I have none.*"

Although the above counter-irritation (if such it was) was not carried out on the recommended surfaces contiguous to the spinal column, I think that the remarkable disappearance of the arthritis suggests at least the effect of a cause, the cause being obviously here (in view of the fact that all other treatment for arthritis was suspended) the ulcerated surfaces caused by the abscesses.

I am, Sir, yours faithfully,

C. T. GRIFFITHS.

Wimpole-street, W., Nov. 30th, 1916.

THE LIBRARY OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—May I ask why the Council of the Royal College of Surgeons of England has decided to regulate the hours of the Library according to the Lighting Order? The readers, it is true, at present show a diminishing number, but these are likely to become fewer still by closing the Library in the afternoon at a time when those engaged in the earlier part of the day can only attend. The usefulness of the Library is being seriously curtailed by this policy, and to discourage the attendance of readers, by failing to meet a demand of the war, either on the grounds of economy or for any other reason, must, for example, deprive many officers of the Royal Army Medical Corps of the opportunity of profiting from the advantages the Library affords. This policy, the Council will excuse me for suggesting, seems scarcely to be a sapient example of official administration. To meet the disability of, not to evade, a war demand must surely, in this instance, be the proper course to pursue. The cost of a few blinds it cannot be supposed would involve a prohibitive outlay, while the justification of such an outlay must be apparent under the circumstances of the case.

I am, Sir, yours faithfully,

PERCY DUNN.

Wimpole-street, Nov. 23rd, 1916.

SCOPOLAMINE-MORPHINE IN LABOUR.

To the Editor of THE LANCET.

SIR,—A note upon two years' experience of the scopolamine-morphine method of inducing anæsthesia in childbirth may be of interest to your readers.

I have used it in 64 cases, out of which number 2 were unsuccessful as regards anæsthesia: one of these was a primipara, the other one had one child. Both were robust, well-built young women. Of the 62 cases in which the anæsthesia was perfect, 20 had some obstetric manipulation performed, and 18 of these had a final anæsthesia with chloroform lasting from 10 to 25 minutes. Two out of the 20 abnormal cases had the low application of forceps under scopolamine alone. In the 42 cases, the only anæsthetic being scopolamine, both the mother and child were well. I have had no post-partum hæmorrhage and no stillbirths in normal confinements. In the whole record of 64 cases I have had one stillbirth: this in a primipara aged 40, delivered under chloroform, after over 48 hours under scopolamine, of a child weighing 12 lb. This was one of the worst confinements that I have attended. Afterwards she stated that she knew nothing about the whole period of labour from the first injection of scopolamine. In my practice I have had two stillbirths in cases in which chloroform was used only within the last two years.

As regards apnœa in the infant, I have had no trouble in any of the normal cases. In two abnormal cases there was difficulty with the infant, one of these a long tedious labour of over 12 hours' duration in which forceps were applied, the other a case of premature delivery at seven months. In this case I spent about half an hour before the child's

respiration was satisfactory. In the same nursing home about the same time an infant was born *at term* without scopolamine and without chloroform which required the same amount of attention.

I have come to the following conclusions: That in normal cases this method is a boon to the mother and harmless to the child. That in abnormal cases extending over many hours scopolamine-morphine is just as useful. That 1/6th grain of morphine sulphate with the first dose is enough for a normal case unless there is great restlessness. The nearer the end of the first stage of labour that the treatment is started the better the result. Owing to rigidity, chloroform is advisable in any operative interference.

The following case is typical of a normal confinement under scopolamine-morphine anæsthesia.

Mrs. ——, aged 24, primipara, was given the first injection at 5.30 P.M., as on examination the cervix was dilating and she, in her own words, "was only just beginning to realise actual pain." Previous to this she had been walking about and waiting for the labour to start. At 6.30 P.M. another injection of scopolamine was given. She began to doze about 20 minutes after the first injection, and was perfectly peaceful until after five hours, she woke up and, again to quote her words, "felt quite refreshed, and found that baby had been born two hours before, quite healthy and normal."

She was quite quiet and felt no pain from beginning to end.

I am, Sir, yours faithfully,

Gillingham, Kent, Nov. 23rd, 1916. IAN JEFFERISS.

THE ANGLE OF THE DROPPING PIPETTE AND A METHOD OF DROP-MEASURING LIQUIDS.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 18th Captain R. P. Garrow, R.A.M.C., has, on the angle of the dropping pipette, an excellent and timely article advocating a reasonable degree of live intelligence on the part of workers in using drop-measuring, as was advocated also by Dr. P. Fildes and Dr. J. McIntosh in a recent article on A Method of Applying the Wassermann Reaction in Large Numbers, in THE LANCET of Oct. 28th.

The phenomenon of a simply drawn pipette of suitable ganged size rhythmically yielding equal drops of desired volume is one of the most remarkable quiet small phenomena in nature. Few and simple as are the "rules" for guiding this gentle force thus harnessed, those rules must be known and followed.

An attempt was made to set forth the principles and some applications of drop-measuring in two articles recently published by me in THE LANCET of Dec. 4th, 1915, and Sept. 2nd, 1916. The space was all too small, and I have not yet seen occasion to modify, except in the way of expansion, any of my statements. Among the 90 paragraphs of my two articles one was devoted to the angle of the pipette. The practical rule that the pipette should be "held vertical, or nearly so," was thus given, and was explained by pointing out that the drop-size increases with the circle or oval of contact, that the long axis of the oval increases roughly as the secant of the angle of declination from the vertical, and that the secant increases in the first 8° at only one-sixteenth of the rate at which it increases in the sixth 8°. I did not pursue the matter beyond 45° from the vertical position; indeed, in the second 45° the resultant of the various forces in play is widely different according to the size of the pipette concerned. Thus, with Captain Garrow's pipette the drop from the horizontal nozzle has twice the volume of the drop from the vertical nozzle. But with a pipette 1/3 mm. in outer diameter, freshly drawn by me, the "horizontal drop" is three times the volume of the "vertical drop." This further emphasises the rule, as Captain Garrow puts it: "The only correct position in which to hold a dropping pipette is the vertical position."

I am, Sir, yours faithfully,

R. DONALD.

Bacteriological Laboratory, London Hospital Medical College, Nov. 24th, 1916.

THE King has sanctioned the following appointments to the Order of the Hospital of St. John of Jerusalem in England:—As Knights of Grace: Colonel S. M. Smith, A.M.S., and Surgeon-General R. W. Ford, C.B., D.S.O.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Wounded.

Capt. C. O. Donovan, R.A.M.C., attached Loyal North Lancs. Regiment.
Capt. R. Farrant, R.A.M.C.
Lieut.-Col. N. C. Rutherford, R.A.M.C.
Capt. A. C. Wilson, R.A.M.C.
Surgeon-Major F. W. Bailey, Royal Field Artillery.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Lieut. L. Fitzmaurice, Somerset Light Infantry, fifth son of Dr. R. Fitzmaurice, of Littlehampton, and late of Lindfield, Sussex.
Second Lieut. A. A. Smith, Loyal North Lancs. Regiment, younger son of Dr. A. Smith, J.P., of Camberwell.
Capt. W. G. Barker, Connaught Rangers, only surviving son of the late Col. A. Barker, Army Medical Service, of Harley-street, London.

MENTIONED IN DESPATCHES.

In a despatch received from General Sir Archibald Murray, K.C.B., Commander-in-Chief of the Egyptian Expeditionary Force, dated Oct. 1st, and dealing with the operations in Egypt from June 1st to Sept. 30th, the names of the following medical officers are mentioned:—

Staff, &c.—Col. (temp. Surg.-Gen.) J. Maher, C.B., A.M.S.; Major (temp. Lieut.-Col.) P. S. Lelean, C.B., R.A.M.C.; Major (temp. Lieut.-Col.) C. J. Martin, Australian A.M.C.; Temp. Capt. A. S. M. Macgregor, R.A.M.C.

Army Medical Service and Royal Army Medical Corps.—Temp. Lieut.-Col. H. L. Eason; Local Lieut.-Col. L. P. Phillips; Temp. Lieut.-Col. J. W. Barrett, C.M.G.; Major (temp. Lieut.-Col.) E. McDonnell; Capt. R. B. Campion (Spec. Res.); Temp. Capt. T. D. Kennedy; Temp. Lieut. M. Sommerville; Temp. Capt. G. Wight; Lieut.-Col. W. Howorth; Capt. (temp. Lieut.-Col.) J. W. Mackenzie; Capt. C. C. Fitzgerald, M.C.; Capt. A. H. Norris; Capt. N. H. H. Haskins; Capt. A. B. Sloan; Capt. R. S. Taylor; Capt. F. J. Green; Capt. J. H. Wood; Capt. D. Dickie; Capt. (temp. Major) A. H. Horsfall, D.S.O.

Australian and New Zealand Forces.—Lieut.-Col. (temp. Col.) R. M. Downes, A.A.M.C.; Major W. Stansfield, A.A.M.C.; Capt. P. Dunningham, A.A.M.C.; Lieut.-Col. G. P. Dixon, A.A.M.C.; Lieut.-Col. D. G. Croll, A.A.M.C.; Major E. R. White, A.A.M.C.; Capt. B. D. Gibson, A.A.M.C.; Capt. D. D. Jamieson, M.C., A.A.M.C.; Capt. G. H. Vernon, A.A.M.C.; Capt. G. H. Wood, N.Z.M.C. (died of wounds); Capt. R. G. S. Orbell, M.C.

Indian Army.—Col. W. H. B. Robinson, C.B., I.M.S.; Major H. B. Drake, I.M.S.; 1st Class Sub-Asst.-Surg. Muhammad Zaki.

THE EYE RISKS OF MUNITION WORK.

It might be expected *a priori* that the great extension of munition work would have entailed an increased incidence of injuries to the external eye. That this is not necessarily the case is shown by the letter of a surgeon to an eye infirmary serving a great industrial district, quoted in the most recent memorandum of the Health of Munition Workers' Committee (Cd 8409. Price 1*d*.). The total number of out-patients had not been sensibly greater in 1915 than 1913, and the 10 per cent. increase in cases of impacted foreign bodies was attributed by the surgeon to the growing preference of the worker for their removal by a skilled hand rather than by a fellow-worker. The Memorandum states that the avoidance of eye accidents in munition works is in large measure a matter of reasonable precaution. The majority of injuries are due to metallic particles shot off from the lathe against which the wearing of goggles is a sufficient protection. Two forms of eye-guard have been designed by the Committee to meet the needs of workers, both of which provide for ventilation and easy replacement of the glasses. The misdirected efforts of fellow-workers to remove foreign bodies—the only fruitful source of sepsis—are to be replaced by the attention of the factory nurse, who should have had (the Memorandum states) some ophthalmic training. First-aid by fellow-workers should be confined to the use of eye-drops with or without a pad and bandage.

OBITUARY OF THE WAR.

IAN MACDONALD BROWN, M.A. CAMB., M.R.C.S. ENG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain I. M. Brown, who was killed in action on Nov. 15th, aged 28 years, was the younger son of Dr. Macdonald Brown, of 64, Upper Berkeley-street, London, W. He was educated at St. Paul's School and Downing College, Cambridge, taking the Natural Science Tripos in 1910 and his M.A. degree four years later. After a year at the University of Edinburgh he completed his medical studies at the London Hospital, taking the Conjoint diploma in 1914. Before going up for the final M.B. Camb. war was declared, and he at once volunteered his services, obtaining a commission in the R.A.M.C. After spending a period of service at Aldershot he was sent out to Gallipoli in June, 1915, and was invalided home two months later. He then held various posts in the Southern Command until he was sent out again, this time to France, attached first to a New Zealand Division and later to a brigade of artillery. It was while attending to the wounded under fire that he was killed. Many letters have been received by Captain Macdonald Brown's relatives from the officers and men with whom he was for long in intimate contact, all alluding to their personal loss. He leaves behind him a widow and an infant son.

JAMES DAVID FORRESTER, M.B., CH.B. EDIN.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain J. D. Forrester, who was killed in action on Nov. 13th at the age of 28, was elder son of Provost James Forrester, of Peebles. He was educated at Peebles County High School and George Watson's Boys' College, Edinburgh, continuing his medical studies at the University and graduating in 1912. After a voyage to India as ship's surgeon and resident appointments at Rochdale and Halifax, he volunteered for service on the outbreak of war and after obtaining his commission was for a time at Aldershot before being given charge of the advanced dressing station of a field ambulance attached to the Royal Naval Division. With this he was serving at the time of his death. Captain Forrester was of a solid persevering nature which would have carried him far, and this was combined, as his friends testify, with a consideration for others which lightened the lot of his associates. He stuck close to his work, but found time to play with the Northern Hockey Club and to captain a municipal tennis club. He was lately married to Elizabeth, daughter of William Steel, of Lockerbie, and leaves an infant daughter.

THE MOBILISATION OF THE MEDICAL PROFESSION.

We quoted in THE LANCET last week Sir Donald MacAlister's words to the General Medical Council from the presidential chair, in which he said that he had received a letter from the War Office stating that that Office would gladly engage 400 medical practitioners to-morrow if they were forthcoming. We gave particular publicity to the words, because they were calculated to prepare the medical profession for a movement which may shortly take place for a call upon all persons whose names are to be found upon the Medical Register for assistance to the best of their capacity during the continuation of the war. While we have every reason to believe that the Central Medical War Committee and the Scottish Medical Service Emergency Committee have been able to supply the needs of the Navy and Army in the matter of medical officers up to this time, and while, indeed, there is no evidence that these two bodies will not be able still to play the same valuable part for a considerable period, it is clear that there must come a day, if the war is indefinitely prolonged, when the necessary economy of medical men can only be attained by the mobilisation of the whole of the available supply, so that calls can be made upon individual services as, where, and when required by circumstances. It has long been felt that some such step—a step to which, for convenience, the word "mobilisation" is applied—might have to be taken, and a strongly expressed view to this effect has reached us from Scotland. We believe that the general opinion of the medical profession, judging by the correspondence that comes to us, is in a similar direction. As yet the civilian population has not suffered in any marked way from depletion of medical men, but the distribution of the medical men remaining in civilian practice has been the subject of much criticism, some localities appearing to maintain more practitioners than can be necessary, having regard to their populations, while others must be content with the minimum of professional attention. In this connexion the part played by pecuniary engagements and liabilities in determining decisions cannot possibly be ignored, and the sacrifice that has to be made in the keeping of enrolment pledges is very much greater in the case of some medical men than in the case of others. But the members of the medical profession are the only people who can do medical work, and volunteers from outside cannot be taught our science in a few weeks as they can be taught a branch of some technical industry. The medical man is the product of long training which cannot be dispensed with, and therefore those medical men whom the country possess should be used in the most economical way. This is the fact which seems to us to mean that some form of general mobilisation is advisable, which, by treating all our highly specialised class as one family, should ensure that only the real need of each area is served, and that where such need is more than met the surplus energies can be directed to other spheres. The demands made upon medical men in this way would necessarily be very heavy, but the burden would be distributed upon us all. Moreover, the medical profession as a whole, those already in the ranks of the Navy or Army and those without, would establish the right to ask that their corporate strength should be as carefully husbanded in the ranks of the services as in the civilian areas.

ACCUMULATED FATIGUE IN WARFARE.

The second interim report of the British Association Committee, of which Professor J. H. Muirhead is chairman, to investigate fatigue from the economic standpoint has now been printed and contains a deeply interesting section by Dr. T. G. Maitland on Accumulated Fatigue in Warfare. The present war has, alas, provided unlimited material for the study of fatigue in soldiers at the front, and the cases differ from those of fatigue among civilians in being of greater severity and, in the nature of things, not susceptible to experiment. Military necessity has in the past often prevented the Army from getting the greatest possible value out of each of its units; it was found that the breakdown resulting from long-continued trench strain, while soon recovered from after a period of rest, left the quality of the soldier's work on his return to activity impaired: his

aim was less good, his decision less prompt. Dr. Maitland states that the hope of obtaining an ideal working day for each unit is incapable of realisation, as the actual strain in the field varies with the occasion, and depends on such mutable factors as sleep, food, noise, and nervous strain. Happily, with the present greater ability to supply reinforcements strain can be diminished as well as the actual fighting units more often replaced, and in this way an opportunity is given for what Dr. Maitland calls a "growing delicacy of perception in the anticipation of the breaking-point." From a military standpoint the most important item is the large class of combatants who do not collapse in the field but return from the lines with extreme pallor, a low blood pressure, and a *faiblesse irritable* shown by the restlessness of hands and feet. In these cases fatigue has gone slightly beyond the possibility of sound physiological recuperation. To reduce the incidence of such cases, which are a genuine encumbrance, the hours in the fighting line have lately been diminished. The ultimate sequel of such long-continued fighting strain has been seen by Dr. Maitland in Serbian soldiers who have lived through six years of nearly continuous Balkan war and many of whom show marked arterio-sclerosis. He was able in most cases to exclude the action of mineral poisons, alcohol, and acute specific toxins, and to establish the production of fibrosis in the arteries from hard work alone. The whole of this interim report teems with matter of urgent and practical interest and further instalments will be welcomed.

AMERICAN MEDICAL EXPERIENCES AT THE WAR.

Medical Director H. G. Beyer, who would be styled in a British Navy List Deputy Surgeon-General, has recently told how he was at the outbreak of war working in a laboratory in Berlin. He volunteered at once for Red Cross work and was detailed to the Red Cross Auxiliary Naval Hospital, of 3000 beds, established at Hamburg in the Emigrants' Waiting Place of the Hamburg-American Line. Here he had 64 colleagues, all, he says, inspired with a splendid comradeship and devotion to duty. Dr. Beyer was specially attached as assistant to Professor E. Lexer, and while admiring all the work done he was particularly impressed by the very satisfactory results of the transplanting operations, preventing crippledom and deformity. Further, the silence and the accurate work of the sick transport corps greatly impressed the reporter. He saw 200 wounded removed in 20 minutes at midnight from a hospital train to the waiting motor ambulances "without noise, without audible words of command being given." The same machine-like silent efficiency characterised those who removed patients from hospital ships.

Major W. A. Jolley, of the National Guard of Colorado, has described in the *Military Surgeon* his work at Belgrade under the American Red Cross in the Serbian National Military Hospital, where he took the place of Dr. Magruder, who had died from typhus. In his article, which is excellently illustrated, he notes that improvised hospitals in war time should be located with particular reference to their safety during possible fighting, and observes that the Austrians were very careful during the bombardment to spare his hospital in its conspicuous position with its large Red Cross flag. He thinks that large hospitals should have short tracks laid into them from some near-by railway to facilitate the transport of sick, to save labour, and to prevent congestion of the railway stations, evidently relying upon the immunity from attack which his hospital enjoyed, but which has not been common. Much of Dr Jolley's experience was that of other hospital workers in Serbia, and has therefore been the subject of many books, papers, and addresses in this country, but we do not remember to have seen one piece of information before. He says that most of the sanitary equipment of Serbia was material captured from the Austrians in their retreat. When the Austrians had been in Belgrade for a month they permitted the American party to go home, having been on terms with the Austrians which have not been reported by some other medical and sanitary workers in the war.

A doctor who has recently returned from Austria, where he has been acting as captain in the Austrian Army Medical Corps, gave an address recently in Philadelphia, in which he stated that in spite of the general military preparedness of Germany, they were woefully lacking as regards trained nurses, orderlies, facilities for transportation of the sick, supplies, and other essentials of the sanitary service. Dr. Harvey Cushing, of Boston, Mass., who has been working with the American Ambulance in Paris, has discussed in a full and valuable way the management of cerebral wounds. These, except some tangential longitudinal sinus injuries, which recover spontaneously, and the inaccessible fractures of the base, all require surgical intervention, and Dr. Cushing decides that, except in cases of severe primary hæmorrhage, it is better to send the wounded man to the base hospital. He may not reach it within a couple of days, and thus 1 per cent. may be lost, but 10 to 20 per cent. will be saved, for the brain is notably tolerant to contusions and infections, while even apparently trivial scalp wounds may require for their thorough treatment prolonged neurological study, detailed X ray examination, carefully planned operation under skilful anæsthesia, and perhaps other appliances, such as an electro-magnet. None of these are available at the very front.

RECENT RED CROSS WORK IN DEVONSHIRE.—The War Office has accepted the offer of the residents of Great Torrington (Devon) to equip the residence "Enderley" as a military hospital for 50 patients. The Mayor of Lyme Regis (Dorset) has offered Rhode Hill House, Uplyme (Devon), as a military hospital; there is accommodation for 90 cases, but at the outset it is proposed to receive 50 patients. Peak House, Sidmouth (Devon) has been opened as a Red Cross Hospital and accommodates 50 patients. The commandant is Mr. R. D. Stokes and the medical officer Dr. A. Robin.

"THE CRIMES OF GERMANY."—The illustrated special supplement of the *Field*, noticed in THE LANCET of Jan. 29th, devoted to the violations of international law and humanity by the armed forces of the German Empire, has been revised and brought up to date and is now being issued at the price of 1*s.*, which will ensure a large circulation for this terrible indictment. The re-issue is made in the public interest and the publishers derive no gain from it.

AN Army Order issued this week equalises for the purpose of pension or gratuity injuries received by officers in the performance of their military duties although not acquired in action. Evidence must be forthcoming in each case of special risk due to war conditions, and that reasonable precautions had not been neglected.

Obituary.

WILLIAM PAUL SWAIN, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL.

THE death has occurred in his 83rd year at his home in Plymouth of Mr. William Paul Swain, F.R.C.S. Eng. Mr. W. P. Swain was son of the late Mr. P. W. Swain, F.R.C.S., J.P., in his time also a well-known surgeon at Plymouth. After studying at King's College, London, where he later became an honorary Fellow, and holding resident appointments at King's College Hospital, he joined his father at Plymouth in a large surgical practice. His first hospital appointment was on the honorary staff of the Royal Albert Hospital, Devonport, from which he resigned on his election as assistant surgeon to the South Devon Hospital, to which he remained attached all his life. His surgical writings attained a wide publicity. He was awarded the Jacksonian prize in 1865 for an essay on Diseased Conditions of the Knee-Joint, and his handbook on "Surgical Emergencies for the Use of General Practitioners" ran rapidly through five editions and went all over the world. He was also a frequent contributor to these columns on points of surgical technique. Outside his purely surgical work he was active in improving the sanitary conditions of the Three Towns, being at one time chairman of the Sanitary Committee of the Council, of which he had been a member for 18 years. Mr. Swain had held a commission in the 3rd Devon Volunteers and was a first-rate shot; he was also the possessor of a medal for service in the previous Serbo-Bulgarian War. His loss will be widely felt in Plymouth, where he has left a widow and daughter.

Medical News.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee held on Nov. 14th, 35 cases were considered and £303 voted to 29 of the applicants. The following is a summary of the cases relieved:—

Wife, aged 53, of M.R.C.S. Eng. who practised until recently at Tunbridge Wells. Her husband a few months ago had a paralytic seizure which has left him helpless. His practice, which produced between £500 and £600 a year, has now been sold, and he is to receive one-third of the proceeds for three years, and as the practice was more or less a personal one less than £100 a year is expected. There are 11 children, seven of whom are at home and four going to school, and elder ones only able to help very slightly. Voted £2 last month and referred to the Guild. Voted £10.—Daughter, aged 54, of M.R.C.S. Eng. who practised at Hadleigh. Applicant was a governess for 33 years, but owing to a breakdown in health had to discontinue the work. Income £18 from dividends and £21 pension from another society, and earns a little by needlework. Owing to high price of food unable to manage at present. Voted £2 last month and referred to the Guild. Voted £12 in 12 instalments.—Daughter, aged 47, of M.R.C.S. Eng. who practised at Streatham and died in 1914. Applicant suffers from abdominal trouble and only able to do a little painting, for which there is no sale at present. Only income £17 per year. Her mother has help from the Fund. Relieved twice, £10. Postponed last month for further inquiries. Voted £5.—M.R.C.S. Eng., aged 47, married, who practised at Birmingham, suffering from disseminated sclerosis. Until recently was able to earn a bare living by acting as ship's surgeon, but now too ill to undertake work of any kind. One son, aged 9, and wants help towards his education. Voted £18 in 12 instalments.—Widow, aged 35, of L.R.C.P. Edin. who practised at Edinburgh and died in May, 1916. The deceased had developed quite a good practice, and had invested most of his savings (£800) in the purchase of a house. After his death this was let, the net proceeds being £50. In addition to this, other income £40. Four children, ages 10 to 2 years. Voted £12 in 12 instalments.—Widow, aged 63, of M.R.C.S. Eng. who practised in Suffolk and Cambridge and died in 1904. Left quite unprovided for, and until recently earned a bare income by acting as nurse-companion. About four months ago became ill, and is now suffering from paralysis, and the small amount of money saved is almost exhausted. Voted £2 and referred to the Guild.—Widow, aged 70, of L.R.C.P. Edin. who practised at Cardiff and died in 1906. Was left totally unprovided for, and is now a chronic invalid. Only income two pensions from other societies of £54. Two children married, and unable to help. Relieved 11 times, £82 10s. Voted £6 in 12 instalments.—Widow, aged 79, of L.S.A. Lond. who practised in Suffolk and died in 1878. Left unprovided for with a large family, none able to help. One daughter assists in the home. Only income a pension of £30 from Epsom College. Relieved four times, £22. Voted £12 in 12 instalments.—Daughter, aged 83, of M.R.C.S. Eng. who practised at Newton Abbot and died in 1839. Was a governess for many years. Income from two annuities, £70. Was an annuitant of the Fund for many years, but this was discontinued. Relieved last year, £20 in four instalments. Voted £8 in two instalments.—Daughter, aged 66, of M.D. Edin. who practised at Spalding and died in 1896. Applicant was left with insufficient means, and now too old to get employment. Only income £34 per annum. Relieved once, £12. Voted £12 in 12 instalments.—Widow, aged 59, of M.D. Glasg. who practised in Perthshire and died in 1907. Was left unprovided for, and is now practically blind. Son, who used to help to keep the home, now in the Army. Two other sons married and unable to help. Relieved twice, £12. Glasgow branch of the Guild strongly recommends this case. Voted £10.—Widow, aged 79, of M.D. Lond. who practised in Wimpole-street and died in 1895. Applicant was left with very slender means, total only £44. Suffers from rheumatic gout. Relieved nine times, £55. Voted £10 in two instalments.—Widow, aged 78, of M.R.C.S. Eng. who practised at Holderness and died in 1896. Left with a large family and only £30 per annum. With the exception of two daughters who help at home, the other children are married and unable to help. Tries to supplement income by taking in lodgers. Relieved six times, £72. Voted £12 in 12 instalments.—Daughter, aged 76, of M.D. Erlangen who practised at Leominster. Applicant was left without means and was a chronic invalid, and is now a resident in a home for incurables. Relieved 14 times, £121. Voted £6 in 12 instalments.—Daughter, aged 64, of M.D. Lond. who practised in London and died in 1887. Applicant is blind, and her only income is a pension from a Society for the Blind. Relieved four times, £42. Voted 12 in 12 instalments.—Daughter, aged 65, of F.R.C.S. Eng. who practised at Chester and died in 1884. Applicant left without means, and has endeavoured to earn a living as housekeeper, but owing to age cannot obtain a post. Relieved five times, £32. Voted £10 in two instalments.—Widow, aged 46, of L.R.C.P. Edin. who practised in Fifeshire and died in 1913. Applicant was left without means with six children, two of whom are still at school, and the only one able to help earns £75 per year, which is the family's only source of income. Applicant has recently been very ill, and with the increased cost of living has got into difficulties. Relieved once, three years ago, £10. Voted £20.—Daughter, aged 64, of M.R.C.S. Eng. who practised at Bexley Heath and died in 1886. Left without means and always an invalid. Receives a little help from a friend and earns a few pounds yearly by needlework. Relieved 12 times, jointly with a sister (recently deceased), £194. Voted £18 in 12 instalments.—Daughters, ages 64 and 56, of M.R.C.S. Eng. who practised in Cornwall and died in 1873. Only property left them the house in which they live, and they try to make a living by receiving paying guests, but recently not successfully. Relieved seven times, £118. Voted £18 in 12 instalments.—Daughter, aged 57, of M.R.C.S. Eng. who practised in Liverpool and died in 1893. Applicant lives with two sisters and one brother, none of whom are able to earn much, and all are very delicate. An uncle pays the rent. Relieved seven times, £80. Voted £12 in 12 instalments.—Widow, aged 58, of L.R.C.P. Edin. who practised at Langley and died in 1909. Applicant endeavours to make a living by taking in paying guests, but cannot get sufficient to make it pay. Lives in own house, but it is heavily mortgaged. Relieved six times, £60. Voted £10 in two instalments.—Widow, aged 61, of M.D. Glasg. who practised at Birkenhead and died in 1895. Was left quite unprovided for with three daughters, and one a chronic invalid. Applicant suffers from neuritis. Endeavours to supplement the income earned by the two daughters by taking in lodgers, but owing to the high cost of food unable to manage. Relieved seven times, £102. Voted £6 in 12 instalments.—Widow, aged 53, of M.D. Edin. who practised at Newcastle and died in 1896. Applicant was left entirely without means with one young daughter. Up to about two years ago, when she fractured her leg, managed to make a living as nurse-companion, but cannot undertake any work now, and is dependent on her daughter, now married and only able to help a little. Relieved twice, £24. Voted £12 in 12 instalments.—Widow, aged 86, of M.R.C.S. Eng. who practised at Great Marlow and died in 1891. Left with three daughters, ages 49, 52, and 55, two of whom are deaf and dumb. Only certain income £56. One daughter earns a little as a clerk. Relieved nine times, £68. Voted £24 in 12 instalments.—Daughter, aged 57, of M.D. Lond. who practised at St. Pancras and died in 1868. Applicant and her mother were left entirely unprovided for, and since her mother's death earned her own living as nurse-companion, but owing to ill-health and age unable to obtain suitable work. Voted £6 in six instalments.—Widow, aged 66, of L.R.C.P. Irel. who practised in Essex and died in 1896. Since the death of her husband has earned a living by acting as cook. Recently had a serious operation, which prevents her from working. Only income a small pension from another society. Relieved five times, £42. Voted £12 in 12 instalments.—Widow, aged 67, of L.R.C.P. Edin. who practised at Port Carlisle and died in 1893. Husband died insolvent and left applicant with five children, only one of whom is able to help. Earns a little by taking in lodgers. Relieved three times, £36. Voted £12 in 12 instalments.—Daughter, aged 48, of M.R.C.S. Eng. who practised in Bombay and died in 1873. Applicant endeavours to earn a living by nursing, but finds it impossible to make sufficient to keep herself. Relieved five times, £64. Voted £12 in 12 instalments.

It was reported that four annuitants had died since the previous meeting, one of whom had received £500 and another £480. The vacancies were filled up. Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W.

ROYAL SURGICAL AID SOCIETY.—The fifty-fourth annual meeting of this society was held at the Mansion House on Dec. 6th, under the presidency of the Lord Mayor, Sir William Dunn. The report was adopted, the Lord Mayor personally testifying to the good work done among the poor by the society. He added that the Prince of Wales had become a supporter of the society.

IRISH NURSES AND THE COLLEGE OF NURSING, LIMITED.—An Irish correspondent writes: "The chief objection taken by Irish nurses to the new College of Nursing, Limited, is professional rather than national, and rests on the fact that membership of the College is open not merely to trained nurses but to those practising any branch of nursing, such as mental nursing or massage, and that the latter are to have equal voice with fully trained members in the government of the College."

THE MENTAL AFTER-CARE ASSOCIATION.—The Mental After-Care Association for poor persons, convalescent or recovered, from institutions for the insane earnestly appeals for funds to carry on and extend its work. The association, which is the only one of its kind in the United Kingdom, assists cases in all parts of the country in various ways, and more than 30 per cent. more applications have been received during the current year than in 1915. Secretary, Miss E. D. Vickers, Church House, Westminster.

THE L.M.S.S.A. EXAMINATION.—An action was recently brought by an unsuccessful candidate for the Final Examination of the L.M.S.S.A. against the Master and Wardens of the Society of Apothecaries, alleging that he had not had a fair examination, and demanding the return of his fees. Judge Rentoul, in giving judgment for the defendants, described the allegation as preposterous, and said that no examination could have been better or more fairly carried out.

TUBERCULOSIS AFTER-CARE: CAMBRIDGESHIRE ASSOCIATION.—The formation of a Tuberculosis After-care Association for the administrative county of Cambridge was decided on at a meeting held at Cambridge on Nov. 18th and attended by representative members of the medical profession, Insurance Committee, Friendly Societies, and others interested in philanthropic work. The decision was the ultimate outcome of a paper read in August, 1915, by Mr. P. C. Varrier-Jones, acting tuberculosis officer for the county of Cambridge, at the Friendly Societies Council. Mr. F. Bunnett stated that the Ancient Order of Foresters had altered their rules so as to admit of sick-pay being paid to persons suffering from tuberculosis if they were doing work prescribed as part of their treatment. Sir Clifford Allbutt, who presided, spoke of the scheme as a very important move in the direction of what many thought was the radical need—to stop infection.

Sir James Mackenzie has withdrawn from the central Medical Appeal Board.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reconstruction of the Government.

Mr. ASQUITH announced on Monday, Dec. 4th, that the King had approved of the reconstruction of the Government. Mr. BONAR LAW having intimated to His Majesty his inability to form an administration, Mr. LLOYD GEORGE has undertaken the task with the coöperation of Mr. BONAR LAW.

Ministry of Pensions Bill.

The Ministry of Pensions Bill has been read a third time in the House of Commons.

Food Control.

No official intimation of the appointment of a Food Controller has yet been made, but an Order of the Board of Trade has been issued this week limiting the number of courses to meals served in public places. A further Order prohibiting the eating of meat on certain days is foreshadowed.

Central Midwives Board.

The report on the work of the Central Midwives Board for the year ended March 31st, 1916, has been presented to Parliament. It states that on that date the Midwives Roll contained the names of 40,513 women, an increase for the year of 1644 on the total number appearing on the Roll.

Of the total number, 21,014 have passed the Board's examination, and 9629 have been admitted in virtue of prior certification under Section 2 of the Midwives Act. The trained midwives are consequently 30,543 in number and the untrained 9970 the respective proportions being 75·4 per cent. and 24·6 per cent. as against 73·6 per cent. and 26·4 per cent. in the previous year. The percentage of trained midwives who practise as such is relatively small, and may be estimated at less than 22·1 per cent. of those on the Roll. Of the untrained midwives it is probable that about 53·5 per cent. are in practice though frequently to a small extent only. The corresponding figures for 1914-15 were 23 per cent. and 56 per cent. respectively. From this it appears that although the number of names appearing on the Midwives Roll increases annually, the proportion of practising midwives diminishes. This diminution is actual as well as relative.

An important passage in the report refers to "covering." It proceeds:—

The experience of those engaged in the administration of the Midwives Act shows that the "covering" by medical practitioners of uncertified women acting as midwives is by no means infrequent. The most open method of infringing the provisions of Section 1 (2) of the Midwives Act is where the uncertified woman undertakes the case and delivers the patient. She then sends for the doctor, who notifies the birth and signs the maternity benefit form, but does not examine the patient or attend to her. For this the uncertified woman pays him a small fee, and if trouble arises the case is claimed to be his although he never heard of the patient before the uncertified woman sent for him, and has never seen her since he signed her maternity benefit form. Another form of "covering," less flagrant and consequently more difficult to detect and deal with, is where the medical practitioner books the case as his, but arranges with the uncertified woman that she shall deliver the patient and send for him only in case of abnormality or complication arising where his assistance is required to complete the delivery. If not so sent for, he probably calls during the puerperium and signs the maternity benefit form. It is claimed that the uncertified woman was acting as his nurse, and that he was unavoidably prevented from conducting the delivery. Some local supervising authorities make no effort to deal with this evil, others prosecute the uncertified woman, but so far as is known to the Board none of them have yet brought the conduct of the medical practitioner to the notice of the General Medical Council or made themselves responsible for proceedings taken against him before that body. More than one authority has made representations to the Board on the subject, but has declined to carry the matter further. It has been left to the Board to undertake the responsibility of a prosecution before the General Medical Council.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 29TH.

Repatriation of Invalid Prisoners of War.

Answering Mr. HUME WILLIAMS, Mr. JAMES HOPE (Treasurer of the Household) wrote: We have proposed to the German Government that British and German officers and men who had been transferred to Switzerland shall be repatriated if their infirmities develop in Switzerland to such an extent as to bring them within the scope of the schedule which governs the repatriation of British and German combatant prisoners of war from Germany and this country respectively. It is proposed that suitable cases should be selected by the Swiss medical authorities for recommendation through the delegates in charge of prisoners to the British and German War Offices, with whom the final decision is to rest. From the nature of the proposed agreement it is improbable that the number of men repatriated will be considerable.

THURSDAY, NOV. 30TH.

Vision Test for Metropolitan Drivers of Vehicles.

Answering Mr. PRINGLE, who asked whether any periodical vision test existed for drivers of vehicles in the metropolitan area, Mr. H. SAMUEL (Home Secretary) said: Public carriage drivers in the metropolitan area are required before they are licensed to produce a medical certificate of fitness in which their fitness as to sight is concerned. After they reach the age of 50 a certificate of fitness is required either quinquennially or as often as the licensing authority may deem necessary. For drivers generally I have no power to impose any test.

Mr. PRINGLE: Is it not advisable to have some test in view of the large number of accidents now occurring?—Mr. SAMUEL: I am not sure that it is so much a question of eyesight as more light.

Appointment of Irish Dispensary Doctors.

Mr. O'SHAUGHNESSY asked the Chief Secretary for Ireland whether he had seen the opinion of counsel published the other day stating that the Local Government Board for Ireland had no power to veto the appointment of doctors for dispensary districts because they were within the military age.—Mr. DUKE replied: I understand that some question of legality has arisen. I am not aware of the opinion to which the honourable Member refers.

Venereal Disease and Intemperance.

Mr. PRATT asked the President of the Local Government Board whether he was suggesting to those local authorities who were preparing schemes for the diagnosis and treatment of venereal disease the desirability of instructional lectures and the publication of information; and whether he was directing their attention to that part of the Report of the Royal Commission on Venereal Diseases where the Commissioners stated that their evidence tended to show that the communication of disease was frequently due to indulgence in intoxicants, and that there was no doubt that the growth of temperance among the population would help to bring about an amelioration of the conditions which their inquiry had revealed.—Mr. LONG replied: The Regulations issued by my Department on this subject empower local authorities to make provision for the giving of instructional lectures, and for the publication of information on questions relating to venereal disease. The circular which accompanied the Regulations has drawn attention to the contents of the Report of the Royal Commission.

MONDAY, DEC. 4TH.

Medical Examination of Recruits.

Answering Mr. SNOWDEN, Mr. FORSTER (Financial Secretary to the War Office) wrote that it had transpired that for a time certain persons, in the desire to avoid military service, were going before several medical boards, sometimes after taking drugs. It therefore became a practice among military representatives to accept the opinion of the first board as the most reliable. The practice of going before several boards had now been stopped.

Recruits with Rupture.

In reply to Mr. MACCALLUM SCOTT, Mr. FORSTER stated that men with rupture, who were fitted with a truss, might be passed for garrison duty abroad or at home.

Medical Students and the Army.

Answering Mr. SAMUEL, Mr. LONG (President of the Local Government Board) wrote: The present arrangements made by the Army Council as to medical students are as follows: Fourth- and fifth-year students are not being called up for ordinary military service. First-, second-, and third-year students are being called up if fit for general service. If not fit for general service they are being allowed to continue their studies. All students allowed to continue their studies are, as a condition, required to join an Officers Training Corps and to attend a minimum number of parades. In practice few first-year students are called up, as they are mostly under 19 and come under a general rule postponing until that age the call of students, medical and other, belonging to an Officers Training Corps. The men called up mostly obtain commissions. First-, second-, and third-year men previously called but not fit for general service were, under an Army Council instruction issued in August, relegated to the Army Reserve to return to their studies subject to the condition above referred to.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BRISTOL ROYAL INFIRMARY.—House Physician. Salary at rate of £120 per annum, with board, &c.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £160 per annum, with board, &c.

CHESTER ROYAL INFIRMARY.—House Physician. Salary £160 per annum, with board, &c.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon and Assistant House Surgeon.

GENERAL LYING-IN HOSPITAL, York-road, Lambeth.—Resident Medical Officer for three months. Salary £100 per annum, with board, &c.

GLASGOW PARISH COUNCIL EASTERN DISTRICT HOSPITAL, Duke-street.—Resident Assistant Medical Officer. Salary £250 per annum, with board, &c.

GUY'S HOSPITAL, London, S.E.—Assistant in Bacteriological Department. Salary at rate of £250 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Pathologist. Salary £100 per annum. Also House Surgeon. Salary £200 per annum, with usual residential allowances.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 33 guineas.

LEEDS CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officer. Salary at rate of £250 per annum, with board, &c.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with board, &c.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Surgeons (Male or Female) for six months.

LONDON COUNTY COUNCIL SCHOOL TREATMENT CENTRE, Hammersmith, W.—Ophthalmic Surgeon to the L.C.C. Eye Treatment Centre, Carnforth Lodge, Broadway, Hammersmith, one half-day weekly. Salary £50 per annum. Also Anæsthetist to L.C.C. Throat, Ear and Nose Treatment Centre, one half-day a fortnight. Salary £25 per annum.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.

MANCHESTER CITY SANITARY COMMITTEE.—Medical Officer. Salary £350 per annum.

MANCHESTER COUNTY ASYLUM, Prestwich.—Locum Tenens. Salary £7 7s. per week, with board, &c.

MELBOURNE, AUSTRALIA.—Director to Walter and Eliza Hall Institute of Research in Pathology and Medicine. Salary £800 per annum.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board, &c.

ROTHERHAM HOSPITAL.—Junior House Surgeon. Salary £150 per annum, with board, &c.

ROYAL COLLEGE OF PHYSICIANS, London.—Milroy Lecturer for 1918.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident Surgical Officer.

ST. GEORGE'S HOSPITAL, S.W.—Medical Officer to the Venereal Department for six months. Salary at rate of £400 per annum.

SHEFFIELD UNION HOSPITAL, Firvale.—Two Female Resident Assistant Medical Officers. Salary £250 per annum, with rations, &c.

SHREWSBURY, SALOP COUNTY COUNCIL.—Temporary Tuberculosis Medical Officer Salary at rate of £500 per annum.

SOUTH AFRICA MENTAL HOSPITAL SERVICE.—Two Assistant Mental Physicians (men only). Salary £440 per annum. Also Three Assistant Mental Physicians (men or women). Salary £360 per annum, with board, &c.

SOUTH LONDON HOSPITAL FOR WOMEN, South Side, Clapham Common, S.W.—Female Medical Officer in Charge of Gynæcological Clinic. Also Female Medical Officer in Charge of Skin Clinic. Also Pathologist, part time only.

SOUTHAMPTON PARISH.—Resident Assistant Medical Officer for the Infirmary, Shirley Warren. Salary £250 per annum, with rations, &c.

STOKE-ON-TRENT INFECTIOUS DISEASES HOSPITAL, Bucknall.—Female Resident Assistant Medical Officer. Salary £200 per annum, with board, &c.

UNIVERSITY COLLEGE HOSPITAL.—Assistant in the Dermatological Department. Salary £200 per annum.

VENTNOR, ISLE OF WIGHT, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Female Senior House Surgeon. Salary £250 per annum, with board, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Louth, Lincoln.

Births, Marriages, and Deaths.

BIRTHS.

BAGSHAWE.—On Dec. 1st, at Limassol, Cyprus, the wife of Major H. Vale Bagshawe, D.S.O., R.A.M.C.—twin daughters.

EGAN.—On Dec. 1st, at Hollies-street, Dublin, the wife of Lieutenant-Colonel W. Egan, R.A.M.C., of a daughter.

McLEAN.—On Dec. 2nd, Margaret, the wife of Dr. W. McLean, Medical Inspector, Board of Trade, Liverpool, of a daughter.

MARRIAGES.

FRASER—GALBRAITH.—On Nov. 30th, at St. Simon's, Milner-street, S.W., Kenneth Grant Fraser, L.R.C.P. & S. Edin., Temp. Captain, R.A.M.C., to Charlotte Eileen, younger daughter of the late Henry Galbraith, Archdeacon of Glendalough.

JAMESON—BAINES.—On Dec. 1st, at St. John's Church, Putney, George Dearden Jameson, Captain, R.A.M.C., to Phyllis, only daughter of Mr. and Mrs. Baines, of Carlton-road, Putney-hill.

TRINCA-COLLIER.—On Nov. 30th, at St. Barnabas, Leicester, by the Rev. A. E. Manvell, Captain A. J. Trinca, R.A.M.C., of Melbourne, Australia, to Adela Margaret, eldest daughter of Mr. and Mrs. J. W. Collier, of Fairholm, Uppingham-road, Leicester.

WILLIAMSON—KEITH.—On Nov. 28th, at St. Philip's, Kensington, Captain Maurice Joseph Williamson, R.A.M.C., to Dorothy, daughter of the late Dr. Keith, Aboyne.

DEATHS.

McTAVISH.—On Dec. 2nd, at Kilmartin, Kingswear, Devon, Brigade Surgeon Alexander Campbell McTavish, late 60th Rifles and 17th Lancers.

SWAIN.—At The Crescent, Plymouth, William Paul Swain, F.R.C.S., aged 82 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

JEAN PITART, SURGEON, MEDICAL REFORMER, AND POET.

AT a recent séance of the French Academy M. Antoine Thomas read some notes on the life of Jean Pitart, a surgeon and poet of the thirteenth century in Paris, concerning whose career there is a good deal of uncertainty. Puccinotti, in his "Storia della Medicina," alleges that Lanfranc of Milan found in Paris a surgical college, established there in 1271 by Jean Pitart; but Lanfranc himself, who speaks of his hearty welcome by the French medical men when on a visit to Paris, says nothing of Pitart. The date and place of Jean Pitart's birth are unknown; probably he came from Normandy, and the close intimacy between him and Henri de Mondeville confirms this view. François Quesnay says he died, aged 77, in 1315, but there is evidence that he was alive in 1325, because in that year the Comte de Valois in his will bequeathed 50 livres to Pitart.

The first authentic record of Pitart is at Paris in 1292, when he pays 20 sous as an impost as a resident in the Rue Neuve Notre-Dame. By 1298 he had risen to the rank of court surgeon, for in that year he was in receipt of fees as such from Philippe le Bel. In 1303 he accompanied Philippe IV. to the South of France, for an account of royal expenditure at Toulouse shows that, for 40 days' service, he was paid 7 livres 13 sous and certain apparel. In 1308 he was with Robert d'Artois at Conflans, and in 1312 he went to Artois to attend a certain countess, doubtless successfully, for he received for his services on that occasion no less than 100 livres, a large honorarium in those days; also robes for himself and Madame Pitart. He continued to be the royal surgeon under Louis X. and Philippe V., for the latter presented him with property at Cotentin and elsewhere. Finally, in 1327, Charles IV. calls him his "*dilectus cirurgicus*" in an act giving Pitart further emoluments.

Pitart's decease seems to have occurred at the end of 1328. An interesting event in his long career was his appointment as president of a committee decreed in 1311 by Philippe IV. to inquire into the irregularities occurring in the surgical profession in Paris. The committee were empowered to register those persons worthy of exercising the duties of the craft, which had been usurped without any proper qualification by many barbers. These amateurs had been rounded up by Etienne Boileau, Prefect of Paris, in 1301, when 29 of them were prohibited from practising unless they passed some examination. Pitart probably had a hand in preparing the preamble of the edict promulgating the commission, for, as will be seen from the quotation, it condemns the abuses arising from the actions of uneducated persons, whilst flattering the citizens of Paris upon the erudition of its true scientists:—

"Ne in villa Parisiensi, quæ proprie locus est fluentissimi fontis scientiæ, quæ etiam scientes pavit et, in utero recipiens ignorantes, tandem suæ fontis sapientiæ germinosis rigatos rivales diversarum facultatum reddit scientiis insignitos, talia de cetero perpetrentur."

M. Thomas designated Pitart a poet, one proof of his capacity in that profession being four lines of verse inscribed upon a well which he had caused to be dug in the Cité quarter of Paris; this was still in existence in the seventeenth century. The distich ran as follows:—

Jehan Pitard en ce repaire,
Chirurgien-le-roy, fit faire
Ce puits en (l'an) mil trois cent dix,
Dont Dieu lui doint son paradis.

Pitart excavated the well to prevent the neighbours drinking the dangerously polluted Seine water, and obviously considered the work meritorious. M. Thomas is also satisfied that Pitart wrote a poem, "Le Dit de Bigamie," in which he refuted the views of those who held that a widower who re-married was a bigamist. Jean Pitart appears to have been a man of sound sense as well as of learning which was eminent in its day.

A CHILD-WELFARE ANNUAL.

THE "Child-Welfare Annual," edited by Dr. T. N. Kelynack (John Bale, Sons, and Danielsson, Limited. 1916. Pp. 346. Price 7s. 6d.) claims to be an authoritative guide and directory of the chief philanthropic and business agencies in the United Kingdom concerned with the care of children. The volume contains a number of original communications on the various aspects of child-welfare work by several well-known authorities; thus Dr. J. W. Ballantyne contributes a short article on Pre-maternity

Practice, Mr. Benjamin Broadbent another on the History of the Evolution of Child-Welfare Work, and Mr. B. Seebohm Rowntree another on Childhood and Poverty. These 24 articles occupy one-third of the book. The rest of the volume is devoted to short accounts of the different schemes for child-welfare work originated throughout the kingdom, and, finally, there is a directory of the National Associations, societies, orphanages, homes, and other institutions dealing with the many aspects of child-welfare work. It is a volume with which no philanthropic society can afford to dispense.

RESIDENT MEDICAL OFFICERS AT CHILDREN'S HOSPITALS.

To the Editor of THE LANCET.

SIR,—Will you kindly grant me a few lines in your valuable columns to thank the authorities of Paddington Green Children's Hospital for their very candid advertisement in THE LANCET of Nov. 25th for applications for the posts of house physician and house surgeon there? They say there: "As this is a children's hospital applications from Indian or Egyptian students cannot be entertained." It is certainly gratifying to find someone at least who will say such things out. I am an Indian myself and happen to be the resident medical officer at the East London Hospital for *Children*, and the house physician here is an Indian too. It is beside the point to enter into any comparison between the two hospitals.

I am quite aware of the invidious position we Indians stand in with regard to English hospitals, even as students. There has not been, to my knowledge, any reason given out yet for this exclusion, and I am obliged to the authorities of Paddington Green Children's Hospital for having supplied it without having been, as far as I know, under any compulsion to do so. Egyptians and Indians alike ought to be grateful they need waste no time over Paddington Green Children's Hospital, as they have ever so often done applying for hospital vacancies in Great Britain.

I would recommend all Egyptians and Indians to get a copy of THE LANCET of Nov. 25th were it only to take a cutting out of it and keep it for future reference.

I am, Sir, yours faithfully,

K. S. BHAT,
Resident Medical Officer, East London Hospital
Shadwell, E., Nov. 27th, 1916. for *Children*.

To the Editor of THE LANCET.

SIR,—An amusing and curious statement has been made in an advertisement column of a recent issue of THE LANCET by the secretary of Paddington Green Children's Hospital: "As this is a children's hospital applications from Indian or Egyptian students cannot be entertained."

I can quite understand anybody who says frankly, "I do not want you," but why on earth *Children's* Hospital has been put forth as an excuse for excluding Indians, I do not quite follow. Does it mean that such people are specially unsuitable for children's hospitals because children and their mothers or relatives can't stand Indian residents? If it is really that, then I can assure Mr. Pearce he is entirely mistaken. I am in a like institution myself, and I know several Indian doctors who have acted in similar capacities in other places, and there are none who would say that they have not acquitted themselves well and creditably, and without ever being in the least little bit the cause for falling off of attendance at these places simply because of their nationality. *Per contra*, the daily attendance of patients has gone up in more than one instance. Besides, I have noticed—and it is much to their credit—that the patients themselves have far less prejudice against us than many of the people at the head of the institution. And what is more, they feel quite satisfied with the treatment they get from Indian residents. But if it is a question of mere prejudice—and everyone is entitled to his own opinion—I have very little to say. Only, why specify this publicly in black and white and thus cast a slur on a whole nation for no fault of its own? Why make these appointments so glaringly exclusive? If I do not like anybody, I may not take him. But why publicly ban him like this, especially when he does not deserve it? There is such a thing as politeness, and even Indians deserve it. Besides, are Indians so very objectionable after all? How is one to know, if one never deals with them? From their colour? Preposterous!—I remain, Sir, yours faithfully,

Nov. 28th, 1916. AN INDIAN DOCTOR.

To the Editor of THE LANCET.

SIR,—The human child although by instinct quick to recognise and take advantage of the varying personalities of the grown-ups who minister to its needs, does not untaught develop any prejudice about the colour of their skin. The sick child is grateful to any kind hand that ministers to its comfort, whether white, pink, yellow, or black. It is therefore unnecessary on this ground for the secretary of a children's hospital to warn Indian or Egyptian students from applying for resident posts in the hospital. The problems of West and East must be faced, and the medical profession will doubtless have its special contribution to make to their solution. But nothing will be gained by presuming prejudice where none exists and anticipating the exercise of reasoning by poisoning the springs of thought.

I am, Sir, yours faithfully,

Dec. 2nd, 1916. LEUCODERMA.

DANGEROUS PRACTICAL JOKES.

AT an inquest recently held at Hampstead it was proved that the deceased, who suffered from tuberculosis and heart disease, had died as the result of a practical joke by a fellow workman. A lad, 15½ years of age, admitted that he had connected the door handle of a cabin entered by the deceased with an electrical fuse-box, with the effect that any person who turned the handle would naturally receive a shock. That the first person to do so was ill-suited to receive such a shock was a circumstance which the lad in question might perhaps be excused for not realising. Workmen and boys, however, who handle dangerous forces such as steam, electricity, and compressed air habitually, are apt to be careless of the results when they wish to play tricks upon their fellows. There is an old proverb about playing with edged tools which might be applied in their case, for no doubt self-reproach must be felt by them when a comrade is killed, or even dangerously injured, through their desire to amuse themselves at his expense. Who first applied the term "practical jokes" to the manifestations of humour with which it is associated we do not know, but they seem to have had their greatest vogue in the latter half of the last century. Many were harmless and were at times elaborated with great skill and ingenuity, others were simpler and rougher, and were often intentionally painful to those upon whom they were inflicted. The names of E. A. Sothern and J. L. Toole, both comedians with a wide circle of friends, will always be associated with stories relating to the former class, and many more or less prominent sportsmen and members of bygone "Society" could no doubt be mentioned by their survivors as having played wild pranks which would put in the shade the feats in the same direction of the youths of the present day. Some of our senior physicians and surgeons also could recall incidents of their student days in which they can hardly now realise that they once participated. Latterly practical jokes of the painful class and of an organised description have chiefly been devised for the benefit of unpopular members of a regimental or ship's mess, but this sort of thing will not survive the war, because the men without the popular qualities have shown themselves time and again the best thinkers and fighters.

AN ARTISTIC ALMANAC.

Messrs. Abdulla and Co., cigarette manufacturers, have published an almanac to be sold at 1*s.* 4*d.* a copy, and of that sum 1*s.* will be paid to the British Red Cross Society. Among the artists whose work is produced in black-and-white or colour are the following: C. Percy Bowyer (South Africa), Edouard J. Claes (Belgium), I. Jalea (Rumania), R. G. Mathews (Canada), F. Angeli Radovani (Serbia), Harry Rountree (New Zealand), Paul Thiriat (France), Alcide Davide Campestrini (Italy), E. A. Cox, R.B.A., B.S.W. (England), Kazunori Ishibashi (Japan), Fred Leist (Australia), Gerald Moira (Portugal), Michael Sevier (Russia), and Frank Dadd, R.I.

VITAL STATISTICS OF ASHANTI

Mr. Arthur J. Philbrick, acting Chief Commissioner of Ashanti (which is administered as a dependency of the Gold Coast Colony), states in his annual report that there has been a large increase of the population since the Census of 1911, when the total was 287,814 (141,231 males and 146,583 females). The inhabitants of Kumasi, the chief town, are estimated to number 24,000 or more. The general health during 1915 was good on the whole, and there were no epidemics among the people. The European community, numbering about 400, consists exclusively of officials, merchants, miners, and missionaries. Eight officials and 4 non-officials were invalided during the year; 33 Europeans were admitted to hospital and 119 treated outside, the prevalent disease being malaria of a mild type. 1097 natives were admitted to hospital and 10,425 treated outside. A native hospital at Kumasi—a model establishment of its kind—was completed in November. A well-equipped laboratory has recently been built in connexion with the office of the medical officer of health. The rainfall at Kumasi in 1915 was 52·18 inches, the mean temperature 76·86° F., and the degree of humidity 86·24. The climate is not suited for permanent European settlement; the average stay in the country is 12 months, after which recuperation in a more bracing climate is necessary. Mr. Philbrick notes with satisfaction the eagerness of the villagers to improve the conditions under which they live.

ANTHRAX-INFECTED SHAVING BRUSHES.

AT a meeting of the Health Committee of the City of Liverpool, held on Nov. 30th, Dr. E. W. Hope, the medical officer of health, reported that he had found two "imitation badger" shaving brushes infected with anthrax. He thought it desirable to warn the public not to buy shaving brushes answering the following description. One had a plain wooden black handle and the other had a white-metal handle with a small mirror at the top. It was suggested that these brushes were but another example of the diabolical tactics of the enemy, for the black-handled brush came from the continent, while inquiries are being made to trace the foreign place of origin of the other. It was also stated that no process could be relied upon to disinfect a brush which did not at the same time undermine its utility. While the bacillus of anthrax is readily destroyed, the spores have a high degree of resistance to heat and chemical agents, but it seems probable that while animal skins are most difficult to disinfect, a shaving-brush could be sterilised by long exposure in boiling water, say for two hours, or immersion for one hour in perchloride of mercury solution (1 : 500) for at least an hour. It has been shown, however, that the bristles imprisoned in the cement used in the brush may still show anthrax after this treatment, and heat may melt this cement and spoil the brush, while a liquid disinfectant would not reach the infected parts. The whole question calls for careful inquiry and the adoption of measures directed against the importation of such disease-bearing brushes. Similar cases have already been reported in THE LANCET.

BY an Order in Council issued on Wednesday a medical practitioner who prescribes cocaine otherwise than in accordance with the regulations is liable to summary punishment under the Defence of the Realm Act.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Dec. 12th.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 4.30 P.M.

A CLINICAL MEETING will be held at the Maudsley Hospital, Denmark Hill.

Major F. W. Mott: (1) Demonstration of Cases of Shell Shock; (2) Demonstration of Macroscopic and Microscopic Changes in the Brains of Fatal Cases.

Arrangements will be made for members to see over the hospital.

N.B.—The Maudsley Hospital may be reached *viâ* the Bakerloo Tube to the Elephant and Castle, and thence to Denmark Hill by tramway; also by motor bus, 12A, from Piccadilly; and by rail from Victoria or London Bridge to Denmark Hill.

Wednesday, Dec. 13th.

SURGERY (Hon. Secretaries—Raymond Johnson, V. Warren Low): at 5 P.M.

Paper:

Miss Frances Ivens, M.S.: A Clinical Study of Anaerobic Wound Infection, with an Analysis of 167 Cases of Gas Gangrene.

N.B.—Members of other Sections are invited.

Friday, Dec. 15th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—A. S. Blundell Bankart, E. A. Cockayne, C. P. Lapage): at 4.30 P.M.

Cases will be shown.

Short Paper:

Dr. F. Parkes Weber: A Case of Cyclic Vomiting with Acidosis.

ELECTRO-THERAPEUTICS (Hon. Secretaries—E. P. Cumberbatch, Robert Knox): at 8.30 P.M.

Papers:

Dr. Finzi: Pharyngeal Pouches.

Dr. Salmond: The Changes observed in Osteomyelitis of Different Origins.

Papers will also be read by Dr. Jordan and Dr. Martin Berry.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., A meeting devoted mainly to Demonstrations of the Principles of the Re-education of the Wounded. The following gentlemen will take part:—Mr. A. Lawson: The Work being done for the Blind at St. Dunstan's; Mr. F. D. Wood, A.R.A.: Facial Restoration; Mr. J. B. Mennell: Limping and the Re-education of Walking; Mr. McMahon: The Treatment of Shell-shock Stammering; and Dr. A. Bradford.

HUNTERIAN SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.

WEDNESDAY.—5 P.M., Paper:—Dr. R. Hingston Fox: The Use of Antimony in Ancient and Modern Medicine.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—5.30 P.M., Paper:—Dr. H. H. Scott: The Vomiting Sickness of Jamaica.

ILLUMINATING ENGINEERING SOCIETY, House of the Royal Society of Arts, 18, John-street, Adelphi, W.C.

FRIDAY.—5 P.M., Mr. L. Gaster: War Economies in Lighting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie). 3.30 P.M., Special Demonstration:—Dr. J. Metcalfe: Screen-Demonstration of X Ray Diagnosis of Cardiac and Pulmonary Lesions.

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

LONDON HOSPITAL, Mile End-road, E.

THURSDAY.—11 A.M., Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis. (Lecture IV.) In connexion with this lecture Dr. J. McIntosh will give a Practical Demonstration of the Examination for Spirochætes and Wassermann Test.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 1st, 1916.

Date.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Tem.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 30	...	45	41	40	39	40	Overcast
Dec. 1	...	42	42	32	32	33	Overcast
,, 2	...	44	42	33	39	40	Overcast
,, 3	...	42	42	39	40	40	Overcast
,, 4	...	57	41	34	33	34	Overcast
,, 5	...	43	41	34	34	36	Cloudy
,, 6	...	47	43	36	35	36	Cloudy

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

The following journals, magazines, &c., have been received:—British Dental Journal, Journal of Nervous and Mental Disease, Therapeutic Gazette, Dominion Medical Monthly, Practitioner, British Journal of Dental Science, New Zealand Medical Journal, Indian Medical Gazette.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

We cannot undertake to return MSS. not used.

Offices: 423, STRAND, LONDON, W.C.

MANAGER'S NOTICES.

ALTERATION IN THE PRICE OF "THE LANCET."

INCREASED war expenses and cost of production necessitate an increase of the price of THE LANCET. Commencing with the first issue in the New Year, the price will be 8*d.* instead of 6*d.* The rates of subscription will remain as revised in October.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied.

BOOKS, ETC., RECEIVED.

MASSON ET CIE, Paris.
Les Blessures de l'Abdomen. Par J. Abalie (d'Oran), Correspondant National de la Société de Chirurgie, Chirurgien des Hôpitaux. Avec Préface du Dr. J.-L. Faure. Price 4 fr.
Radio-diagnostic des Affections Pleuro-opulmonaires. Par F. Barjon, Médecin des Hôpitaux de Lyon. Price 6 fr.
Les Formes Cliniques des Lésions des Nerfs. Par Mme. Athanassio Benisty, Interne des Hôpitaux de Paris (Salpêtrière). Avec Préface du Professeur Pierre Marie. Price 4 fr.
Les Séquelles Ostéo-Articulaires des Plaies de Guerre. Par Aug. Broca, Professeur d'Anatomie Topographique à la Faculté de Médecine de Paris. Price 4 fr.

METHUEN AND CO., London.
Crowley's Hygiene of School Life. By C. W. Hutt, M.A., M.D. Cantab., D.P.H. Oxon. Price 3*s.* 6*d.* net.
Raymond; or, Life and Death. By Sir Oliver J. Lodge. Price 10*s.* 6*d.* net.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., London. (HILTON AND CO., Calcutta.)
Materia Medica and Therapeutics. By R. Ghosh, L.M.S. Cal. Univ. Edited by B. H. Deare, Lt.-Col., I.M.S., with assistance of B. N. Ghosh, F.R.F.P.S. Glasg. New edition. Price 7*s.* 6*d.* net.

UNIVERSITY OF LONDON PRESS, London.
University of London Calendar, 1916-17. Price 6*s.* net. Regulations for Internal Students. Regulations for External Students

UNWIN, T. FISHER, London.
Rhymes of a Red Cross Man. By R. W. Service. Price 3*s.* 6*d.* net.
With the Russian Wounded. By Tatiana Alexinsky. With Introduction by Gregor Alexinsky. Translated by Gilbert Cannan. Price 2*s.* 6*d.* net.
A Hausa Botanical Vocabulary. By John M. Dalziel, M.D., B.Sc., D.T.M., West Africa Medical Staff. Price 6*s.* 6*d.* net.

Communications, Letters, &c., have been received from—

A.—Ardath Tobacco Co., Lond.; Anglo-French Drug Co., Lond.; Dr. J. K. Adhya, Lond.; Anglo-Russian Press Service, Lond.; Messrs. Arnold and Sons, Lond.; Auxiliary R.A.M.C. Funds, Lond., Sec. of.

B.—Mr. G. Brown, Exeter; Messrs. Butterworth and Co., Lond.; Dr. Gabrielle Breeze, Tangier; Messrs. Burnside, Ealing; Sir Wm. H. Bennett, K.C.V.O., Lond.; Mr. G. Billing, Blackpool; Messrs. Baillière, Tindall, and Cox, Lond.; Dr. S. A. Bonnerjee, Lond.; Dr. S. J. McC. Bradshaw; Dr. G. B. Brown, Sidmouth; Dr. F. A. Brooks, Felixstowe; Mr. W. Bryce, Edinburgh; Dr. Upendra nath Bramachari, Calcutta; Capt. C. Ball, R.A.M.C.; Dr. H. H. Bashford, Lond.; Miss E. F. Boultbee, Lond.; Messrs. Burroughs Wellcome and Co., Lond.; British Drug Houses Co., Lond.; Mr. K. S. Bhat, Lond.; Capt. J. A. Bennett, R.A.M.C.; Surg.-General Sir David Bruce, C.B., Lond.; Mr. H. Brown, Lond.

C.—Dr. E. A. Cockayne, Lond.; Messrs. J. and A. Churchill, Lond.; Mr. L. D. Cohen, Lond.; Dr. W. S. Clark, Lagos; Chadwick Trust, Lond.; Cheadle Royal, Sec. of; Dr. C. Clapham, Mayfield; Dr. F. Charlesworth, Lond.; Dr. L. M. S. Clark, Lond.; Capt. J. R. Collins, R.A.M.C.

D.—Messrs. W. Dawson and Sons, Lond.; Médecin-Major J. Dumont; Dumfries and Galloway Royal Infirmary, Dumfries, Sec. of; Mr. G. W. Dryland, Kingston; Devonshire Hospital, Buxton, Gen. Supt. and Sec. of; Capt. G. Davis, R.A.M.C.

E.—Dr. W. M. Elliott, Glasgow; Mrs. H. A. Edmunds, Brockweir; The Edith Cavell Homes of Rest for Nurses, Lond., Chairman of; Dr. A. Eastwood, Lond.; Messrs. E. Evans and Sons, Shanghai.

F.—Lieut.-Col. C. G. Fagan; Prof. I. Fisher, New Haven, Conn.; Mr. L. Franklin, Southwick; Dr. T. Fisher, Lond.; Mr. J. D. Forrester, Peebles; Mr. W. E. Franklin, Newcastle-on-Tyne; Dr. R. H. Fox, Lond.; Dr. V. Feldman, Lond.; Messrs. Fletcher, Fletcher, and Co., Lond.; Capt. S. Fenwick, R.A.M.C.; Factories, Chief Inspector of, Lond.; Dr. R. F. Fox, Lond.; Mr. W. E. Fry, Lond.

G.—Mr. H. S. Gettings, Lond.; Messrs. C. Griffin and Co., Lond.; Messrs. W. and A. Gilbey, Lond.; Capt. W. E. Guest, C.A.M.C.; Mr. E. J. Gordon, Winterton; Dr. A. W. Gardner, Shrewsbury; Messrs. George, Son, and Davies, Cardigan.

H.—Dr. W. B. Haddad, Cairo; Dr. A. J. Hesterlow, Negapatam; Major A. F. Hurst, R.A.M.C.; Dr. J. Haddon, Denholm; Mr. E. M. Harvey, Lond.; Mr. J. T. Henderson, Pietermaritzburg; Mr. C. T. W. Hirsch, Lond.; Dr. T. F. Harwood, Lond.; Dr. W. F. Hale, Ropp; Lieut.-Col. D. C. Hamilton, R.A.M.C.(T.); Dr. C. E. Hetherington, Londonderry; Prof. M. Hartog, Cork; Messrs. A. Heywood and Son, Manchester; Hot Mineral Springs, Bath, Director of.

I.—Institute of Journalists, Lond.

J.—Jeyes' Sanitary Compounds Co., Lond.; J. P. A.; *Journal of the Royal Naval Medical Service*, Lond., Editor of; Messrs. Walter Judd, Lond.

K.—Messrs. H. S. King and Co., Lond.; Dr. King, West Derby; Prof. H. R. Kenwood, Lond.; Mr. S. M. Kaka, Lond.; Miss K., Lond.; Mr. D. Kennedy, Dublin.

L.—Dr. C. E. Lea, Manchester; Messrs. H. K. Lewis and Co., Lond.; Leeds Public Dispensary, Sec. of; Local Government Board, Lond., Sec. of; Messrs. Lever Bros., Port Sunlight; Leeds City, Town Clerk of; Dr. S. M. Lawrence, Gravesend; Messrs. Leslie's, Lond.; Messrs. E. and S. Livingstone, Edinburgh; London County Council, Clerk to the; Messrs. Longmates, Lond.; Mr. P. Lockhart-Mummery, Lond.; Mr. N. Langovoi, Moscow; London Throat Hospital, Sec. of.

M.—Capt. J. A. Matson, R.A.M.C.; Mr. C. McCay; Messrs. J. Maclehose and Sons, Glasgow; Mr. W. Martindale, Lond.; Messrs. C. Mitchell and Co., Lond.; Fleet-Surg. J. Menary, R.N.; Messrs. J. Menzies and Co., Glasgow; Mr. L. J. P. Mordaunt, Beaufort, British North Borneo; Messrs. Mace and Haldane, Lond.; Maltine Manufacturing Co., Lond.; Mr. R. Maurice, Lond.; Mr. C. A. Morton, Clifton; Dr. Miller, Lond.; Metropolitan Asylums Board, Lond., Clerk to; Dr. R. Morton, Lond.; Medical Society of London, Registrar of.

N.—Sir George Newman, Lond.; Dr. F. P. Nunneley, Brighton; Messrs. F. Newbery and Sons, Lond.; National Filling Factory, Hereford, Chief Acct. of; New Hospital for Women, Lond., Sec. of; Dr. C. R. Niven, Everton.

O.—Lieut.-Col. J. Oldfield, R.A.M.C.

P.—Capt. J. Proctor, R.A.M.C.; Mr. J. H. Parsons, Lond.; Messrs. Pierson, Morrell and Co., New Barnet.

R.—Lieut. W. Roche, R.A.M.C.; Capt. F. P. P. Rouse, I.M.S. (retd.); Capt. W. H. R. Rivers, R.A.M.C.; Royal Surgical Aid Society, Lond., Sec. of; Registrar-General for Scotland, Edinburgh; Surg.-Gen. H. D. Rolleston, C.B.; Mr. G. M. Richards, Shrewsbury; Royal Society of Arts, Lond.; Royal Institution of Great Britain, Lond., Sec. of; Royal Academy of Medicine in Ireland, Dublin; Staff-Surg. B. S. Robson, R.N.; Mr. J. E. Rivera; *The Ration*, Reading, Editor of.

S.—Col. C. J. Symonds, A.M.S.; Dr. G. A. Sutherland, Lond.; Capt. C. P. Symonds, R.A.M.C.; Soldiers' and Sailors' Free Buffet, Lond., Commandant of; Messrs. Southall Bros. and Barclay, Birmingham; Mr. W. B. Saw, Lond.; Smith's Advertising Agency, Lond.; Dr. C. R. Steinke, Akron; Sheffield Guardians, Clerk to the; Messrs. A. W. Shaw and Co., Lond.; Southampton Guardians, Clerk to the.

T.—Dr. H. M. Turnbull, Lond.; Dr. J. Tatham, Old Oxtead; Mr. H. Terry, Northwich.

V.—Mr. E. Veitch, Edinburgh; Victoria Hospital, Burnley, Hon. Sec. of.

W.—Mr. J. H. Walker, Mirfield; Mr. E. S. Weymouth, Lond.; Messrs. J. Wright and Sons, Bristol; Dr. G. Ward, Sevenoaks; Dr. R. W. A. Walker, Oxford; Mr. E. R. Watts, Liverpool; Mr. S. Walton, Lond.; West London Hospital Post-Graduate College, Dean of.

Letters, each with enclosure, are also acknowledged from—

A.—Ashton-under-Lyne District Infirmary, Sec. of; Messrs. Allen and Hanburys, Lond.; Dr. W. J. W. Anderson, Canton; Mr. E. L. Allum, Northampton; Miss L. Ackroyd, Lond.

B.—Bishopstone House, Bedford; Brentford Guardians, Clerk to the; Dr. C. A. Beck, Barton-on-Humber; Mr. H. A. V. Bouvier, Tadworth; Messrs. C. Birchall, Liverpool; Borax Consolidated, Lond.

C.—Dr. I. D. Chepmell, Worthing; Messrs. J. and A. Carter, Lond.; Capt. A. M. Clark, R.A.M.C.; Dr. A. Caddy, Calcutta; Church Army, Lond., Chief Acct. of; Chester Royal Infirmary, Sec. of; Messrs. Constable and Co., Lond; Surg. D. C. Crawford, R.N.V.R.; Sir John Collie, Lond.; Messrs. Cargills, Glasgow; Mr. J. W. A. Cooper, Maghull.

D.—Messrs. Darley, Cumberland, and Co., Lond.; Director of Education, Khartoum; Miss Durham, Lond.

E.—Erasmic Co., Warrington.

F.—Dr. P. W. Freyer, Cleggan; Messrs. Fannin and Co., Dublin; Messrs. Fairchild Bros. and Foster, Lond.; Dr. P. Fildes, Lond.

G.—Monsieur J. Gamber, Paris; Grant College Medical Society, Bombay, Hon. Sec. of; Mrs. Goodwin, Diss; Dr. J. W. Geddes, Middlesbrough; G. F. M.

H.—Capt. P. Hayes, R.A.M.C.; Capt. E. A. R. Huxtable, R.A.M.C.; Fleet-Surg. Home, R.N.

I.—Mr. Ingram, Dufftown; Ilford Education Committee, Treas. to the; Miss Ivens.

J.—Mr. R. T. Jones, Harlech; Mr. J. E. Jewell, Lond.; J. L. H.; Dr. A. Hill Joseph, Bexhill-on-Sea.

K.—Dr. F. T. Keyt, Hong-Kong; Capt. T. Kelly, R.A.M.C.

L.—Mr. F. W. A. Logan, Cathcart; Dr. T. Lumsden, Lond.

M.—Mr. T. C. Maxwell, Freetown; Messrs. J. Menzies and Co., Edinburgh; M. S. J.; Dr. C. Major, St. Brelade; Dr. E. J. Miller, Suva, Fiji.

O.—Capt. E. O'Connor, R.A.M.C.

P.—Mr. J. H. Pringle, Glasgow; Mr. C. Y. Pearson, Cork; Messrs. W. Porteous and Co., Glasgow; Messrs. Paterson, Millbrook; Mr. G. R. Pillai, Tinnevelly Town.

Q.—Queen Mary's Convalescent Auxiliary Hospital, Lond., Hon. Sec. of.

R.—Mr. R. C. Rumbelow, Lond.; Mr. H. M. Riley, Leicester; Major S. Rowland, R.A.M.C.

S.—Messrs. Saward, Baker, and Co., Lond.; Sidmouth Urban District Council, Clerk to the; Capt. H. F. Strickland, R.A.M.C.; Dr. T. Shufflebotham, Newcastle; Dr. F. M. T. Skae, Kirkwall; Dr. T. J. Selby, Frodsham.

T.—Messrs. C. Taylor and Co., Lond.; Messrs. D. P. Taraporevala, Sons, and Co., Bombay.

V.—Messrs. Van Houten, Lond.; Mr. P. C. Varrier-Jones, Cambridge.

W.—Dr. M. Watson, Klang, F.M.S.; Messrs. A. J. Wilson and Co., Lond.; Mr. A. Wilson, Lond.

Y.—York Medical Society, Sec. of; Messrs. Alexander Young, Lond.